

SECTION 1

PLAN SUMMARY

The purpose of Rowe's Open Space and Recreation Plan (OSRP) is to provide a framework for decisions dealing with land use, natural systems, and the lands that contain unique ecological, recreational, historical, and scenic values. It documents current natural, recreational, and cultural resources of the town and identifies priorities for protecting, maintaining, or improving them, as well as community preferences for the creation of new features and resources.

The 2024 Rowe Open Space and Recreation Plan illustrates the importance of healthy rivers, wetlands and aquifers, contiguous forests, open fields and meadows, and unique and intact habitats in the climate resilience of wildlife habitat, water supply, livelihoods, and the built environment. It also documents the community's collective understanding of how open space, historical structures, the landscape, and recreation features contribute to the town's rural character and the appeal of Rowe as a place to live and visit.

The Seven-Year Action Plan, found in Section 9, provides direction to a myriad of local boards, commissions, and committees about how to implement the goals and objectives that were developed in part from the results of the 2022 Open Space and Recreation Planning Survey, input at the October 2023 public forum, and other recent planning efforts undertaken by the Town. The 2024 Rowe Open Space and Recreation Plan prioritizes actions that will help ensure that the Town of Rowe meets the following goals:

GOAL A. Protect Rowe's ecosystem integrity and ecosystem services

GOAL B. Enhance recreational and cultural opportunities in Rowe

GOAL C. Create the organizational and educational framework for achieving the goals of the open space and recreation plan

A digital version of this OSRP and summaries can be found online:
<https://storymaps.arcgis.com/stories/e753ea229e904a40a5e6588dc5f9e08c>.

SECTION 2

INTRODUCTION

A. STATEMENT OF PURPOSE

The purpose of this plan is to provide a foundation for decision-making based upon the short-term and long-term needs of Rowe residents regarding the protection and/or enhancement of priority natural, recreational, and cultural resources. This OSRP represents consensus on the most important natural, recreational, cultural resource-related needs in town and on the best solutions for addressing these needs. It is also designed to help residents and Town officials decide which conservation opportunities they should act upon. This plan represents the collective will of many citizens who are committed to understanding and solving complex environmental challenges posed by a changing climate. The Seven-Year Action plan, when carried out by Town boards, commissions, and committees, will implement the Town's open space and recreation goals and objectives as well as provide citizens with meaningful experiences in the climate-smart stewardship of their whole community (see *Section 9*).

B. PLANNING PROCESS AND PUBLIC PARTICIPATION

A. DESCRIPTION OF PROCESS

The Town of Rowe's open space and recreation goals and objectives were developed through a public survey, a public forum, and a series of meetings of the Open Space and Recreation Committee between March 2022 and December 2023. In October of 2022, an OSRP public forum was held to gain input from residents on the Seven-Year Action Plan. The forum was advertised on the Town website, on the Climate Resilient Open Space and Recreation Plan for Rowe StoryMap, in the Goal Post, through a press release in the *Greenfield Recorder*, and through an invitation to Town boards and committee members to attend. Flyers were also posted at Town Hall and other public locations in town.

In October 2022, a public survey developed by the Open Space and Recreation Committee was distributed to the Rowe community. The survey was available through Survey Monkey and paper surveys were available at the Library and the Post Office/Town Hall. The survey was advertised on the Town website, in the StoryMap, in the Goal Post newsletter, on two of the Town's Facebook sites, via the Town's reverse 911 emergency communication system, and via a postcard mailed to every household in town. A total of 61 responses were received. The survey responses were used to help the Open Space and Recreation Committee focus on the development of *Section 6: Community Vision*, *Section 7: Analysis of Community Needs*, *Section 8: Goals and Objectives*, and *Section 9: Seven-Year Action Plan*.

DRAFT FOR PUBLIC REVIEW
ROWE OPEN SPACE AND RECREATION PLAN

From March 2022 to December 2023, the Rowe Open Space and Recreation Committee held a total of XX public meetings. During these meetings, Committee members discussed open space and recreation goals and objectives and their opinions on the most critical environmental problems in Rowe and viable strategies for addressing those problems. In addition, they reviewed and discussed draft sections of the Rowe OSRP. Agendas and sign-in sheets from these meetings are included in the Appendices.

A public review period was held between November 1 and December 1, 2023, during which time the final draft of the Open Space and Recreation Plan was available for review on the Town website and StoryMap. All comments received during the public review period are included in *Section 10: Public Comment*.

SECTION 3

COMMUNITY SETTING

The information provided in this section inventories and assesses the human and land use components of the landscape, moving from the present, to the past, and then to the potential future based on current development trends.

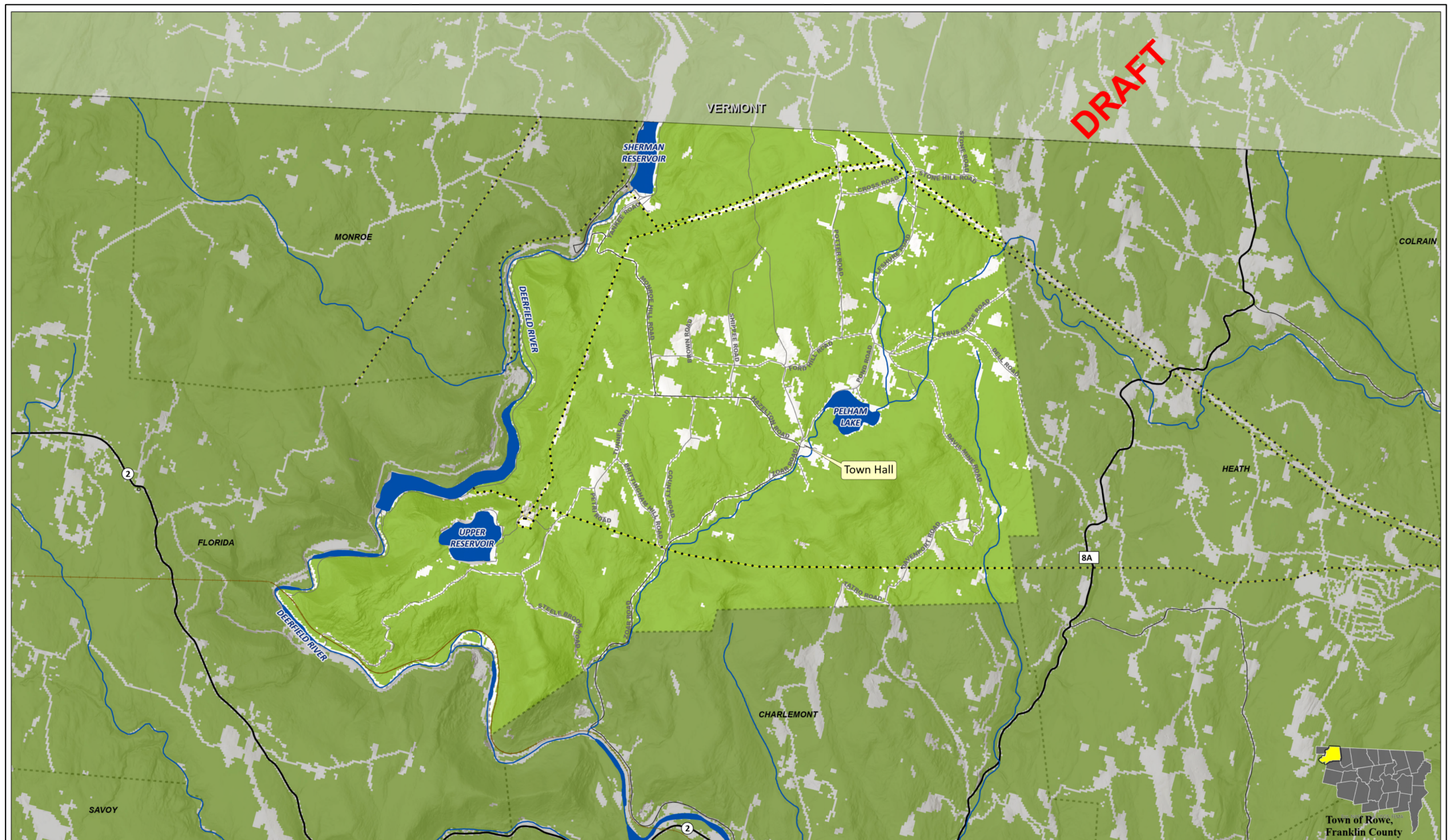
- **Regional Context** provides a snapshot of Rowe and identifies the ways in which the location of the town within the region has affected its growth and quality of open space and recreational resources.
- **History of the Community** looks back at the manner in which human inhabitants settled and developed the landscape.
- Using statistical information and analysis, **Population Characteristics** describes who the people of Rowe are today and how population and economic trends may affect the town in the future.
- Finally, **Growth and Development Patterns** describes how the town of Rowe has developed over time and potential impacts that infrastructure and the current zoning could have on open space, recreation areas, ecosystems, drinking water supplies, and municipal services.

A. REGIONAL CONTEXT

Rowe is a rural community in Franklin County, located in the hills of the Berkshire Plateau in Northwestern Massachusetts. The town covers an area of 24 square miles, bordered by the towns of Heath to the east, Charlemont to the south, Florida and Monroe to the west, and Whitingham, Vermont to the north (see the *Regional Context* map on the following page). It is approximately 40 minutes west of Greenfield and 30 minutes east of North Adams.

Western Franklin County is one of the most rural parts of the Commonwealth and Rowe is one of the only towns in Massachusetts with no state highways running through it. It can be accessed from Route 2 in Charlemont via local roads, as well as via local roads from the centers of Heath, Charlemont, Monroe, and Whitingham. Reflecting its remoteness, the town's population is one of the smallest in the Commonwealth, hovering around 445 people, with a portion of those residents estimated to be seasonal. Rowe residents commonly rely on the towns of Charlemont, Shelburne Falls, and Wilmington, Vermont for basic provisioning and services, but often have to travel farther to North Adams and Greenfield.

DRAFT



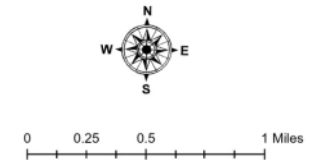
Town of Rowe

Open Space & Recreation Plan 2024

Regional Context

- Town Boundary
- Forest*
- Transmission Line
- Rail Line
- Major Road
- Local Road
- Water Body
- River

*National Land Cover Database (NLCD) 2018 provided by USGS
<https://www.usgs.gov/centers/eros/science/national-land-cover-database>



Town of Rowe, Franklin County

Source: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

frcog Franklin Regional Council of Governments

Rowe is also a founding member of the Woodlands Partnership of Northwestern Massachusetts, an effort by towns and regional non-profit organizations in western Franklin and northern Berkshire counties to create a funding stream to help benefit the region's economy, recreation, and resource protection. The partnership works to conserve forestland, enhance natural resource-based economic development opportunities, including recreational tourism and sustainable forestry, and enhance the fiscal stability of participating municipalities.¹ In 2022, Rowe became the regional leader for an MVP grant to design a regional forestry resources website, designate demonstration forests (of which Pelham Lake Park is one), and conduct woods walks to inform the greater community of climate resilience practices to enhance the longevity of forests in the face of climate change.

A.1 NATURAL RESOURCE CONTEXT

As it plans the protection of open space, natural systems, and recreation opportunities, Rowe can consider the role that its rich resources play across the region. Rowe is part of a forest corridor stretching along the Appalachian Mountain chain from west-central Connecticut through Vermont's Green Mountains to the Canadian border. Rowe is also situated in the middle section of the Deerfield River watershed, the upper part of which reaches far into Vermont. The Deerfield River defines the western border between Rowe and the towns of Monroe and Florida. The Deerfield is a regionally important river for its spectacular scenic and recreation opportunities, for being one of the coldest and cleanest rivers in the region, and for its extensive use by electric utilities. There are three dams and three active hydroelectric operations along the Deerfield River in Rowe.

Much of the town's topography are steep hills composed of bedrock-dominated glacial till. Two ridges run diagonally northeast to southwest on either side of Pelham Brook. At the southern edge of the western ridge, Negus Mountain towers above the Deerfield River. The town's high-elevation points, Mount Adams and Mount Todd, dominate the eastern ridge. Most settlement has occurred in the gentler topography between these ridges and in the northern third of town.

Rowe is predominantly forested, with large blocks of contiguous forest that stretch into neighboring towns and states. These forests help conserve water supply, improve water quality, protect habitat, and allow for migration of flora and fauna. The town has a large lake, a reservoir, and a pond, which along with numerous wetlands, meadows, and hayfields diversify and enhance habitat richness.

As one of the last areas in the state with large contiguous forested blocks and with significant biodiversity, Rowe and neighboring towns have long been the focus of regional land protection projects. A number of targeted regional biodiversity land conservation projects, such as Franklin County's Warner Hill landscape partnership project in Rowe and Charlemont and Mass Wildlife's bat habitat management work at Maxwell Brook Wildlife Management Area have occurred in recent years. As of 2023, 19% of the land in Rowe was permanently protected, helping to protect the ecological function and climate resilience of these landscapes.

¹ <http://www.mohawktrailwoodlandpartnership.org/>

The civic and cultural center of Rowe is the village referred to as Town Center. It is situated along Pelham Brook at the Mill Pond just south of the intersection of Zoar Road with Hazelton, Middletown Hill, and Pond Roads. Rowe's Town Library, Town Hall, Fire Department, and a number of Town-owned cultural sites are located here, as well as the privately owned Rowe Camp and Conference Center, and a slightly higher density residential development. About a mile northwest of the village is Rowe Elementary School and, across the street, Pelham Lake Park—1,360 acres of Town-owned parkland and recreational facilities. The remainder of town is characterized by very low-density residential development interspersed with a few home-based businesses. As with many of the more rural Franklin County Hilltown communities, Rowe has faced less residential, commercial, and transportation development pressure compared to communities along the Interstate 91 corridor.

Pelham Lake Park is a unique asset in Rowe. The municipally owned park features 17.5 miles of trail, and opportunities for swimming, fishing, hunting (in designated areas), boating, recreational sports, public programming, and youth employment. The park's facilities are open to all Rowe residents and guests; its trails are also used by non-residents.

A.2 SOCIAL AND ECONOMIC CONTEXT

Rowe is a predominantly residential community with very minimal commercial development and minimal residential growth. Traditionally, Rowe has had no cell phone service and poor internet, though the community installed broadband internet in 2019. The nearest provisions and services are 20 minutes away and the nearest hospital service is 40 minutes away. Outside jobs and childcare are also a 20-minute drive minimum. People are attracted to Rowe by its remoteness and scenic beauty, great recreation amenities, low taxes, and proximity to ski/adventure mountains Berkshire East and Mount Snow.

Recreation opportunities found in and around Rowe, such as the Pelham Lake Park and Bear Swamp trail system, and the fishing and whitewater rafting on the Deerfield River, draw people from around and outside the region. The nonprofit Rowe Camp and Conference Center also brings hundreds of people to Rowe each year through their workshops and camps. There is little aside from outdoor recreation and family or social connections that draws non-residents to town and almost no establishments that rely on tourists.

Despite having very few businesses to diversify the tax base, tax revenue from the utility companies that own land and operate facilities in Rowe has supported the Town's ability to attend to the recreational and open space goals of its residents. Primarily through the protection, development, and maintenance of Pelham Lake Park, the Town of Rowe provides residents excellent access to open space, as well as a variety of recreation, and cultural- and nature-based programming. It also supports recreation programming and swimming lessons for its young population and school-choice students.

Rowe Elementary School serves children pre-K through grade 6. Beyond grade 6, Rowe students attend Mohawk Trail Regional School, Franklin Technical School, or local charter schools.

A.3 REGIONAL PLANNING CONTEXT

Critical natural and recreational resources cross town and state boundaries, requiring planning and support at the watershed or regional scale. Large-scale, strategic, coordinated conservation will lead to better outcomes for wildlife and natural resources, as protecting entire habitats and focusing on both endangered and common species can benefit the whole suite of local species. Connected landscapes that allow species to move and respond to climate change are also particularly important. This calls for regional coordination among neighboring towns to plan for the best network of open space and recreation lands. The Town of Rowe is willing and interested to work with neighboring communities and regional organizations on open space, recreation, and environmental goals. The Town of Heath has a current approved Open Space and Recreation Plan, but the other two Massachusetts towns contiguous to Rowe—Monroe and Charlemont—do not have current Open Space and Recreation Plans.

In addition to the established conservation efforts and recreation opportunities, there are also a number of ongoing regional conservation partnerships and planning efforts encompassing Rowe. Regional planning agencies, land trusts, and watershed/landscape planning groups can attract political and funding resources in ways individual towns may not be able to. The Franklin Regional Council of Governments (FRCOG) provides regional planning and purchasing services for member towns, of which Rowe is one. Regional priorities have been forest and farmland conservation, water quality protection, climate change resiliency, affordable housing, economic development, and sustainable land use. Recent regional projects that have involved Rowe and have implications for open space and recreation planning include the following:

Franklin County's [*Regional Plan for Sustainable Development*](#) (RPSD), completed in 2013, is a long-term guide for Franklin County municipal governments, regional organizations, businesses, non-profits, and individuals that outlines a set of sustainable development goals developed by county-wide stakeholders. The region's sustainable development goals are to

- Increase and improve the housing stock, while focusing on affordability
- Provide additional options for alternative transportation
- Encourage economic development by redeveloping vacant sites
- Promote energy conservation and efficiency
- Protect natural resources, including farmland and drinking supplies
- Foster the growth of arts and culture
- Concentrate new growth near town centers and focus on infill development
- Improve infrastructure, particularly high-speed internet

As a member of the [Woodlands Partnership of Northwestern Massachusetts](#) (WPNM), support and funding is regularly made available to the Town of Rowe to:

- Purchase conservation restrictions from willing landowners
- Help landowners care for their land through sustainable forestry, invasive plants and pest management, climate change adaptation, estate planning, and receiving carbon credits for their forests
- Promote the region and provide small grants and marketing assistance to recreation, tourism, and natural resource-based businesses
- Offer funding to cities and towns to help offset the infrastructure and emergency service impacts of increased tourism

The work that Rowe has completed or has funding for through the WPNM is detailed in *Section 9* of this plan.

In 2023, the FRCOG published the [Deerfield River Corridor Outdoor Recreation Study](#), with findings and recommendations on:

- Operational and management issues related to current Deerfield River users, such as access, safety, over-crowding, communications, etc.
- Forward-looking economic development opportunities to capture more economic value from visitation, such as improving infrastructure, collaboration, marketing, visitation, and facilities

A Deerfield River Corridor Task Force will continue the study and planning for safe, accessible, and economically beneficial recreation on the Deerfield River.

B. HISTORY OF THE COMMUNITY²

Rowe occupies an area encompassing the traditional homelands of the Mohican, Abenaki, Pocumtuck, and Nipmuc peoples, all members of the Wabanaki (Dawnland Confederacy).³ Tools from 400 B.C. were found near Bear Swamp, signaling the long history of people in this area.⁴ Two undated native sites were located on the Deerfield River floodplain northwest and northeast of present-day Upper Reservoir-Bear Swamp. Period settlement most likely consisted of fishing encampments established on the narrow Deerfield River floodplain, along Pelham Brook and in the vicinity of Pelham Lake. The presence of a

² For more detailed information on the history of Rowe, visit the Rowe Historical Society or read *The History of Rowe, Massachusetts* (4th ed) by Percy Whiting Brown and Nancy Newton Williams.

³ <https://native-land.ca/>

⁴ Brown and Williams, 2013

relatively large area of potential horticultural land adjacent to Pelham Lake suggests this location may have been the local focal point of native settlement. Secondary fishing and/or hunting camps could also have been situated on Rowe's streams and brooks, especially those draining into the Deerfield and Pelham Lake.⁵ Travel routes along the Deerfield were used well into the 18th century by Indigenous people and European settlers. Tribes displaced by colonization or impacted by colonial era wars during the 1600s and 1700s may have increased use of the Deerfield River around Rowe during that time.

Since being forced from their homeland and enduring tremendous hardship, the Mohican community is now known as the Stockbridge-Munsee Band of Mohican (Stockbridge-Munsee Community) and is anchored in Western Massachusetts as well as the Stockbridge-Munsee reservation in Wisconsin. As a consequence of war and dispossession of land, the Pocumtuck were absorbed into their neighboring kin communities of the Wabanaki Confederacy. Abenaki and Nipmuc peoples have continuously resided in the area since colonization, centered in southern Vermont and central Massachusetts, respectively.

Colonists arrived in Rowe in 1744 during King George's War. A line of forts were constructed along the Massachusetts Bay colony's northern border, including Fort Pelham, a small wooden stockade established on a hill above what is now Pelham Lake. Approximately 20 – 30 militiamen and families occupied the fort at any one time, serving as military scouts in addition to hunting and subsistence farming in the vicinity of the fort. Fort Pelham was never attacked and was eventually abandoned in 1754 during the French and Indian War.

In 1762, Reverend Cornelius Jones, a land speculator from Sandisfield, MA, bought and settled on the 10,000 acres of land—"Myrifiel Plantation"—that would become Rowe. By 1770, the population had expanded to 28 families of mostly farmers and lumbermen. In 1779, Jones left for new land in New York and the citizens of Myrifiel petitioned for a legal township, eventually granted in 1785. The Town was incorporated as Rowe along with abutting land parcels, bringing Rowe up to 15,639 acres. Rowe's population grew to a peak population of 851 people in 1820, but rapidly declined afterwards as mills in the valley towns and the lure of richer soils in the west drew young people away.

In the 1830s, Rowe was caught up in the "sheep fever" that swept the rest of New England, when imported wool tariffs increased demand for sheep farming in the United States. Forests were cleared and stone walls erected for pasture, but overstocking led to high erosion, degradation of already thin soils, and sedimentation of rivers. Beyond agriculture, people made a living in Rowe in the 1800s as blacksmiths, cobblers, running public houses, woodworking, or employed at the tannery/satinet mill. In 1838, the neighboring Town of Zoar was annexed into Rowe and Charlemont.

In 1856, the Troy and Greenfield Railroad brought Rowe out of isolation. This involved the construction of the Hoosac Tunnel, a 4 ¾ mile tunnel through a granite mountain in the neighboring town of Florida, both an engineering feat and the longest tunnel in North America until 1916. The project employed 800-

⁵ Massachusetts Historical Commission 1982

900 people, mainly European immigrants, 196 of whom died on the project. By 1868, the passenger railroad brought an influx of summer vacationers and many people in Rowe opened their homes to boarders or opened other vacation-focused businesses. In 1924, the Unitarian Rowe Camp (now the Rowe Camp and Conference Center) began operation as a spiritual retreat.

Beginning in 1872, several mines were opened to extract soapstone, talc, copper, and iron pyrite. In particular, iron pyrite was in demand as a replacement for brimstone as a source of sulfuric acid for textiles. In 1882, the Davis Mine opened and its uniquely high-quality iron pyrite led to incredible economic success. At its peak it exported 500 tons of material per week. The employed miners, predominantly European immigrants, bolstered Rowe's dwindling population and local economy. However, the owner died unexpectedly in 1905 and the mine closed in 1911 after a period of decline due to lax safety practices. Rowe citizen Percy Brown later acquired the old Foliated Talc Mine property and, in 1955, deeded 485 acres to the town as a wildlife sanctuary and recreation area for the residents of Rowe and their guests. In 1956, Pelham Lake Park was created. Between 1972 and 1997, more land was added to total the current size, 1,360 acres. Other former mining areas were bought by the state, private landowners, or are held as non-park town lands.

In 1927, New England Power Company constructed the Sherman Dam along the Deerfield River in the northwest corner of town, beginning a permanent shift in the tax base. Power line accessibility and the Sherman Reservoir were factors that contributed to the Yankee Atomic Electric Company deciding to site a nuclear power station, Yankee-Rowe, there in the late 1950s (built in the 1960s). Yankee-Rowe brought an influx of families to town, prompting the population to grow again. In 1974, New England Power built the Bear Swamp Pumped Storage hydroelectric plant, downstream of the Sherman Reservoir on the border with Florida. By 1985, 92% of taxes in town were being paid by these two utilities and they owned one third of the land in town. In 1992, Yankee-Rowe became economically unfeasible and ceased operation. Spent fuel rods remain in dry cask storage on site and the site has undergone a full environmental restoration.

Rowe hit its population maximum of 851 people in the 1820s (Figure 3-1). From the 1820s to 1880, the population steadily declined to a low of 502 people. In 1882, the operation of Davis Mine led to an increase in population to 541 people and briefly created a village referred to as Davis. This increase continued until the decline of the mine beginning in 1905. With the lack of industry, Rowe experienced a sharp decline between 1910 to 1950, with an all-time low of 199 people in 1950. The construction and operation of the Yankee-Rowe nuclear power station beginning in the 1960s brought an influx of families into town. Within the Yankee-Rowe era, Rowe experienced several decades of growth, rising to a population of 378 people by 1990. Yankee-Rowe ceased operation in 1992, which led to a subsequent decline by 2000 to 351 people. Rowe has once again had a steady increase in population in the 2010s up to the current population around 445.⁶

⁶ American Community Survey 2016 – 2020 Five-Year Estimates

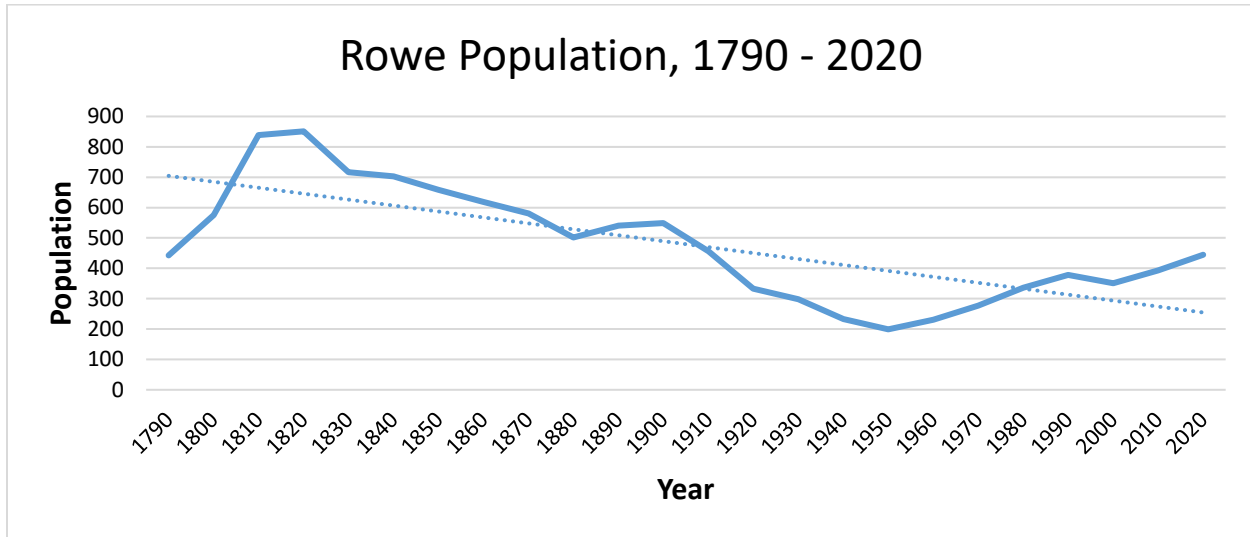


Figure 3-1. Population in Rowe, Massachusetts, 1790 to 2020

Source: U.S. Census Bureau, Decennial Census, Massachusetts Census, and American Community Survey, various years. 2020 data comes from the American Community Survey 2016 – 2020 Five-Year Estimates, not the 2020 Census.

For more information on the town's historic resources, please see the expanded discussion and map under *Scenic Resources and Unique Environments* at the end of Section 4.

C. POPULATION CHARACTERISTICS

C.1 GENERAL POPULATION

Rowe is one of the smaller municipalities in Franklin County, with a total population around 445.⁷ As indicated below in Table 3-1, Rowe's population has grown since 1990.

⁷ A note on the demographic data presented in this chapter: As of writing, in 2023, 2020 U.S. Census Data had not yet been released. The U.S. Census Bureau's American Community Survey (ACS) Five-Year Estimates was the most comprehensive dataset available at the time of writing. Because it relies on sample surveys, it is difficult to generate highly accurate data for small towns. Data collected around 2020 was also not always representative due to demographic shifts and data collection issues created by the COVID-19 pandemic.

It is also not known to what extent the population data presented represents seasonal summer residents.

Table 3-1: Total Population, 1990-2020

Geography	Population			
	1990	2000	2010	2020
Rowe	378	351	398	445
Franklin County	70,092	71,535	71,372	71,029
Massachusetts	6,016,425	6,649,097	6,547,629	7,029,917

Source: U.S. Census Bureau – Decennial Census of Population and Housing 1990, 2000, 2010; U.S. Census Bureau, American Community Survey 2016-2020 Five-Year Estimates.

Rowe’s population growth trend aligns with the general population growth for Massachusetts as a whole, but contrasts with the minimal growth seen in for Franklin County as a whole since 1990 (Figure 3-2).

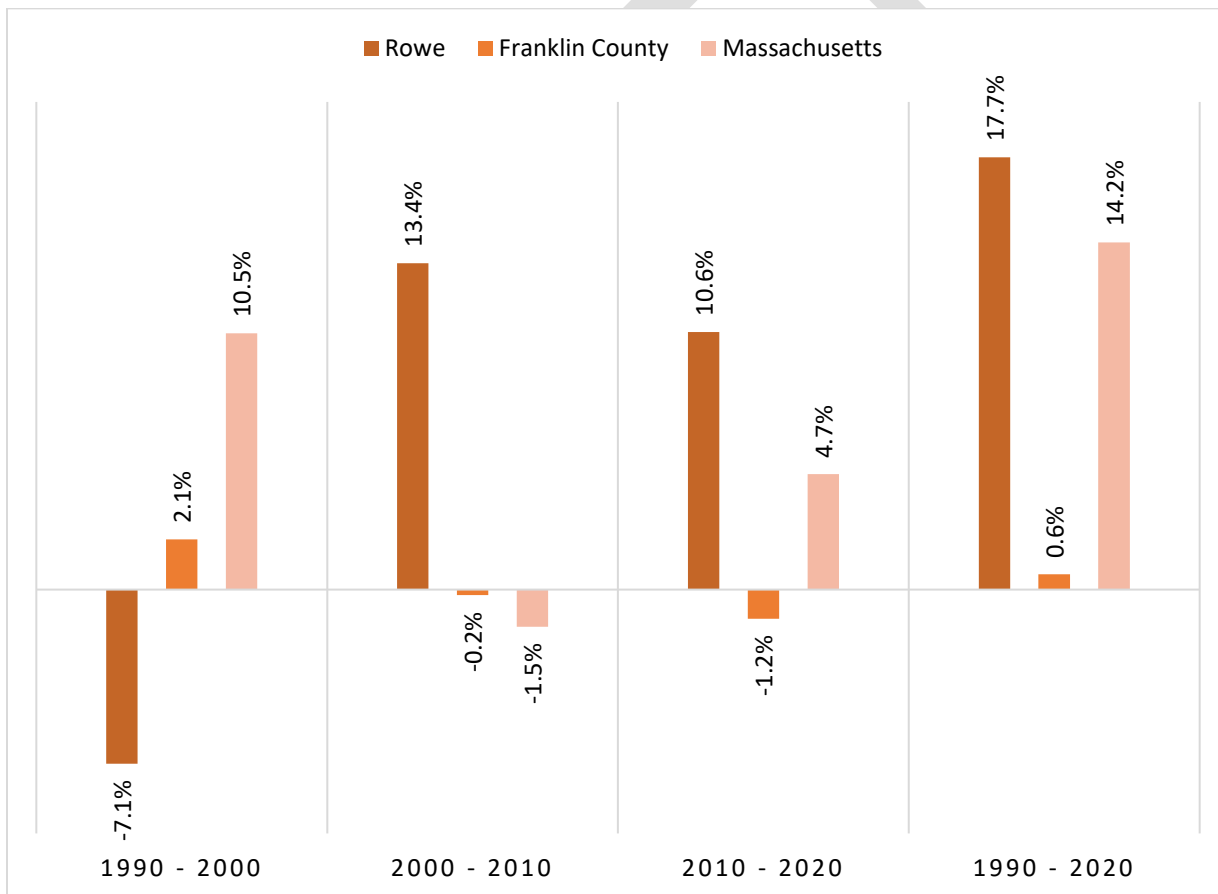


Figure 3-2. Population Change, 1990 to 2020

Source: U.S. Census Bureau – Decennial Census of Population and Housing 1990, 2000, 2010; U.S. Census Bureau, American Community Survey 2016-2020 Five-Year Estimates.

As show in Table 3-2, Rowe’s median age in 2020 was 46.5, similar to the county’s average of 47.0 and notably younger than the town’s median age of 56.6 years ten years prior (in 2010). One fifth (21%) of

the town's population are under 18 years of age and 29% are 65 years old and above. Rowe is a predominantly White community (89%). Approximately 11% of the town's population identifies as people of color, with 2.9% of those identifying as ethnically Latino/a or Hispanic.⁸

Table 3-2. Demographic Summary for Rowe, 2020

Demographic Indicator	Rowe
Population	445
Median age	46.5
% Under 18 years old	21%
% Age 65 and older	29%
% White	89%
% Black/African American	1%
% Native American	0%
% Asian	0%
% Other/Multiple races	7%
% Latino/Hispanic (any race)	3%

Source: U.S. Census Bureau, American Community Survey 2016-2020 Five-Year Estimates.

C.2.1 FUTURE PROJECTIONS

The University of Massachusetts Donahue Institute (UMDI) has produced a set of population projections for all Massachusetts municipalities at 5-year intervals through the year 2050. This estimate, from the 2023 projections release, estimates that the population of Rowe will decrease by 47%, or around 211 people, between 2020 and 2050 (Figure 3-3).⁹ Comparatively, the county's population is expected to decrease by 2% and the state's population is expected to increase by 25% over the same period. UMDI projections are based on at past demographic trends (which includes the period before broadband internet access become operational in 2019) and anticipated demographic trends (which does not account for the possibility of east-west rail from Boston, climate migration, or other unpredictable influences that are likely to have long term effects). These projections are meant only to serve as reference points for planners and researchers and do not claim to be able to predict the future.

⁸ The Rowe Open Space and Recreation Committee believes that the 2020 ACS data shows the Rowe population being younger and less white than it actually is, for the reasons given in footnote 6.

⁹ The methodology looks at past demographic trends (which includes the period before broadband internet access became operational in 2019) and anticipated demographic trends.

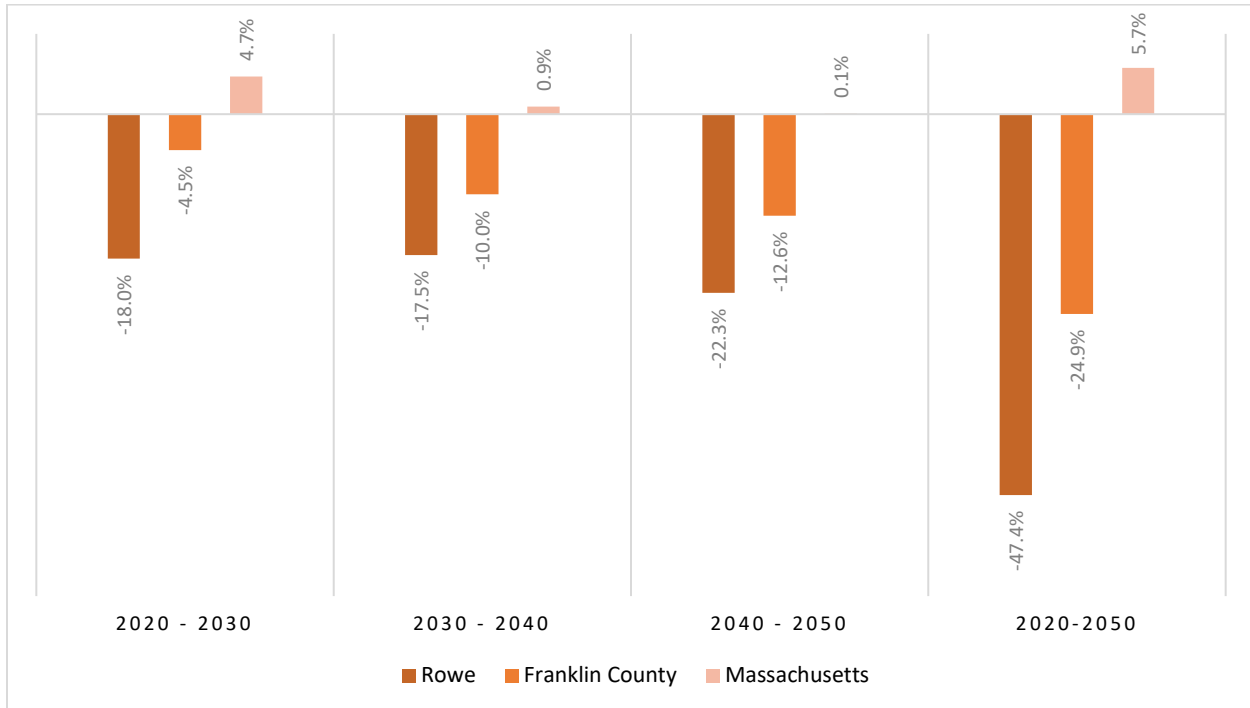


Figure 3-3: Projected Population Change, 2020 – 2050

Sources: U.S. Census Bureau, American Community Survey 2016-2020 Five-Year Estimates and UMass Donahue Institute Vintage 2022 Population Projections.

Rowe is characterized by low-density residential development, with a population density of 18.5 persons per square mile. Current projections for total population indicate that there could be some development pressure from population growth. Age distribution of the current and projected population can help determine how projected population change may translate into demand for open space and recreational resources.

Like most other Franklin County towns, the proportion of residents 65 and older is projected to increase, but not dramatically. Figure 3-4 shows that by 2040, it is estimated that Rowe's age distribution will be nearly the same as it was in 2020, with age cohorts increasing or declining by only one or two percentage points. Many towns in Franklin County are grappling with a shrinking school-age population and growing population over 65. Rowe is not anticipated to experience this same demographic shift and population projections by age suggest that current efforts to accommodate recreational users of all ages and abilities should remain a primary goal for Rowe's outdoor recreation.

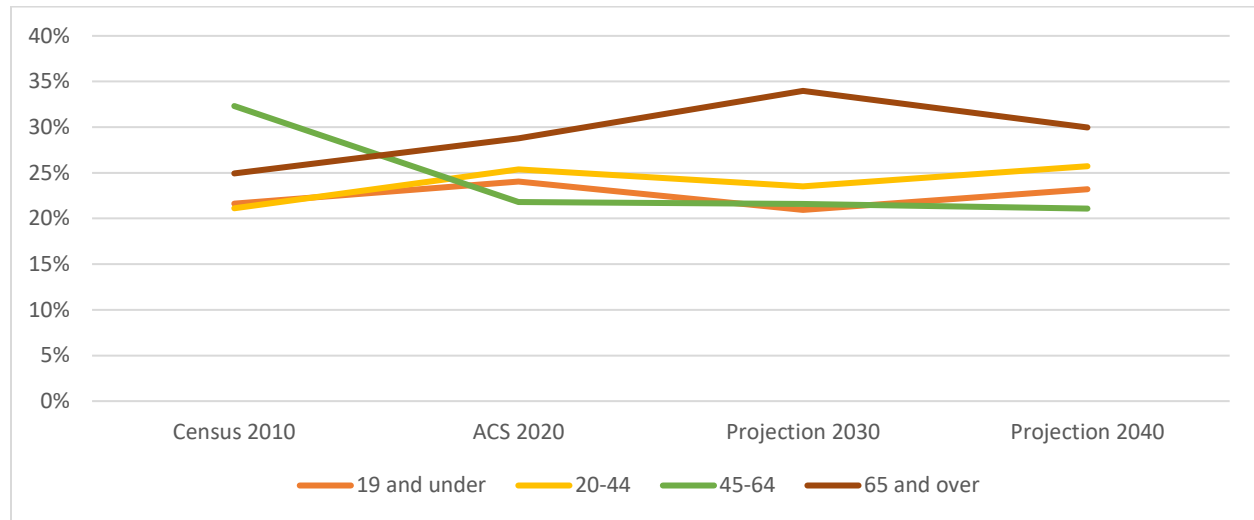


Figure 3-4: Rowe Projected Age Distribution through 2040

Sources: U.S. Census Bureau 2010 Census, American Community Survey 2016-2020 Five-Year Estimates, and UMass Donahue Institute Vintage 2018 Population Projections.

C.2 ECONOMIC WEALTH OF RESIDENTS AND COMMUNITY

Measures of income levels of Rowe’s residents as compared to the county and state are helpful in assessing the ability of citizens to pay for recreational resources, programs, and access to open space. The 2020 ACS 5-year survey estimated Rowe’s per capita income was \$31,125, which is slightly lower than the county per capita income and significantly lower than the state figure (Table 3-3). The median household income for Rowe was estimated to be \$65,625 in 2020, which is higher than the county and lower than the state estimates. A smaller portion of the population in Rowe’s is below the poverty level than in Franklin County and Massachusetts on the whole. Even though Rowe residents have a close-to-average income for the region, the low population makes the Towns’ residential property tax revenue very small. However, Rowe-based utility companies pay 92% of the tax share in Rowe. This substantial supplement to the tax base has meant, for example, that Rowe can afford to acquire parcels for Pelham Lake Park and run a Parks Department, despite being a very small town.

Table 3-3: Income and Poverty, 2020

Geography	Per Capita Income Estimate	Median Household Income Estimate	Percent of Individuals Below Poverty Level*
Rowe	\$31,125	\$65,625	7.7%
Franklin County	\$35,919	\$61,198	10.5%
Massachusetts	\$45,555	\$84,385	9.8%

* For whom poverty status was determined.

Source: American Community Survey 2016-2020 Five-Year Estimates. Five-year estimate of income for the past 12 months and reported in 2020 inflation-adjusted dollars.

C.3 EMPLOYMENT CHARACTERISTICS

The job market in and around Rowe and trends in commercial development can influence population and who open space and recreation amenities may need to serve. The labor force is defined as the pool of individuals who are 16 years of age and over, and are either employed or who are actively seeking employment. Persons not actively seeking employment, such as some enrolled students, retirees, or stay-at-home parents, are excluded from the labor force. In December 2020, Rowe had a labor force of 160 with 152 of those employed and 8 unemployed (Table 3-4). Rowe experienced a 5.0% rate of unemployment, slightly higher than the Commonwealth of Massachusetts' rate of 3.3%.

Table 3-4: Labor Force and Unemployment Data, December 2022

Geography	Labor Force	Employed Persons	Unemployed Persons	Unemployment Rate
Rowe	160	152	8	5.0%
Franklin County	39,521	38,379	1,142	3.2%
Massachusetts	5,718,465	3,724,896	124,483	3.3%

Source: Massachusetts Executive Office of Labor and Workforce Development, Department of Economic Research, LAUS Data.

Rowe tends to have a higher unemployment rate than the county as a whole. Overall, however, the town experienced a similar fluctuation in unemployment as the county and state during the 2020-2021 COVID-19 pandemic period, demonstrating that its labor pool and employment opportunities are influenced by the greater economy (Figure 3-5). Massachusetts workers faced the highest rates of unemployment in the nation during the COVID-19 pandemic,¹⁰ but by December of 2022, both Rowe's and the state's unemployment rate had dipped back down to pre-pandemic levels.

¹⁰ Massachusetts Executive Office of Labor and Workforce Development, Local Area Unemployment Statistics

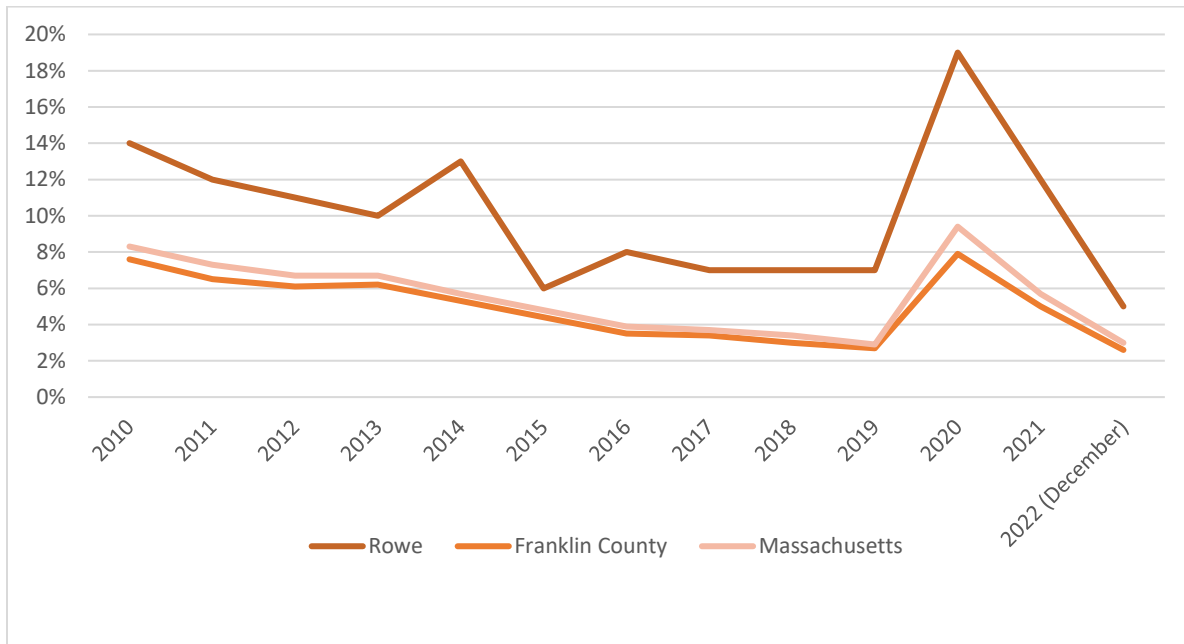


Figure 3-5: Unemployment Rates 2010 – October 2022

Source: Massachusetts Executive Office of Labor and Workforce Development, LAUS Data.

The Massachusetts Executive Office of Workforce Development collects industry data for towns using the same categories as County Business Patterns, but also includes the public administration sector. Table 3-5 shows the number of workers and the percentage of total workers in each industry sector in Rowe. In 2020, educational services and health care/social assistance were the largest industries in Rowe (19%), followed by arts, entertainment, recreation, accommodation, and food services (17%). Employment was spread over all other industries relatively evenly. Arts, entertainment, recreation, accommodation, and food services are comparatively more important industries for Rowe than in the county as a whole, because of the presence of Zoar Outdoor and Berkshire East.

Table 3-5: Top Industries for Rowe Residents, 2020

Industry	Percentage of Total Rowe	Percentage of Total Franklin County
Educational services, and health care and social assistance	19%	34%
Arts, entertainment, and recreation, and accommodation and food services	17%	7%
Manufacturing	8%	11%
Public administration	8%	4%
Construction	8%	8%
Retail trade	8%	11%
Professional, scientific, and management, and administrative and waste management services	7%	8%
Other services, except public administration	7%	4%
Wholesale trade	5%	2%
Finance and insurance, and real estate and rental and leasing	5%	3%
Transportation and warehousing, and utilities	4%	3%
Information	2%	3%
Agriculture, forestry, fishing and hunting, and mining	2%	2%
Total civilian employed population 16 years and over	195	46,432

Source: American Community Survey 2016-2020 Five-Year Estimates.

According to the Massachusetts Department of Economic Research, there are a total of 18 employers in Rowe and the number of people employed in town was 127 people.¹¹ The largest employer is Rowe Elementary School, followed by the Rowe Fire Department and Rowe Camp and Conference Center (Table 3-6). In addition to the elementary school, there are nine other Town-affiliated employers. Private and non-profit businesses include another retreat center, landscaping and construction services, and Yankee-Rowe.

¹¹ MA Department of Economic Research: 2021 Total Annual Average Employment and Wages by Town Ownership

Table 3-6: Rowe Major Employers, 2022

Employer Name	Estimated Range of Employees*	Industry Sector
Rowe Elementary School	20-49	Elementary and Secondary Schools
Rowe Fire Department	10-19	Fire Protection
Rowe Camp and Conference Center	10-19	Recreational Camps

*Includes full-time, part-time and per diem employees.

Source: MA Department of Workforce Development: 2022 Largest Employers by Area

C.4 ENVIRONMENTAL JUSTICE POPULATIONS

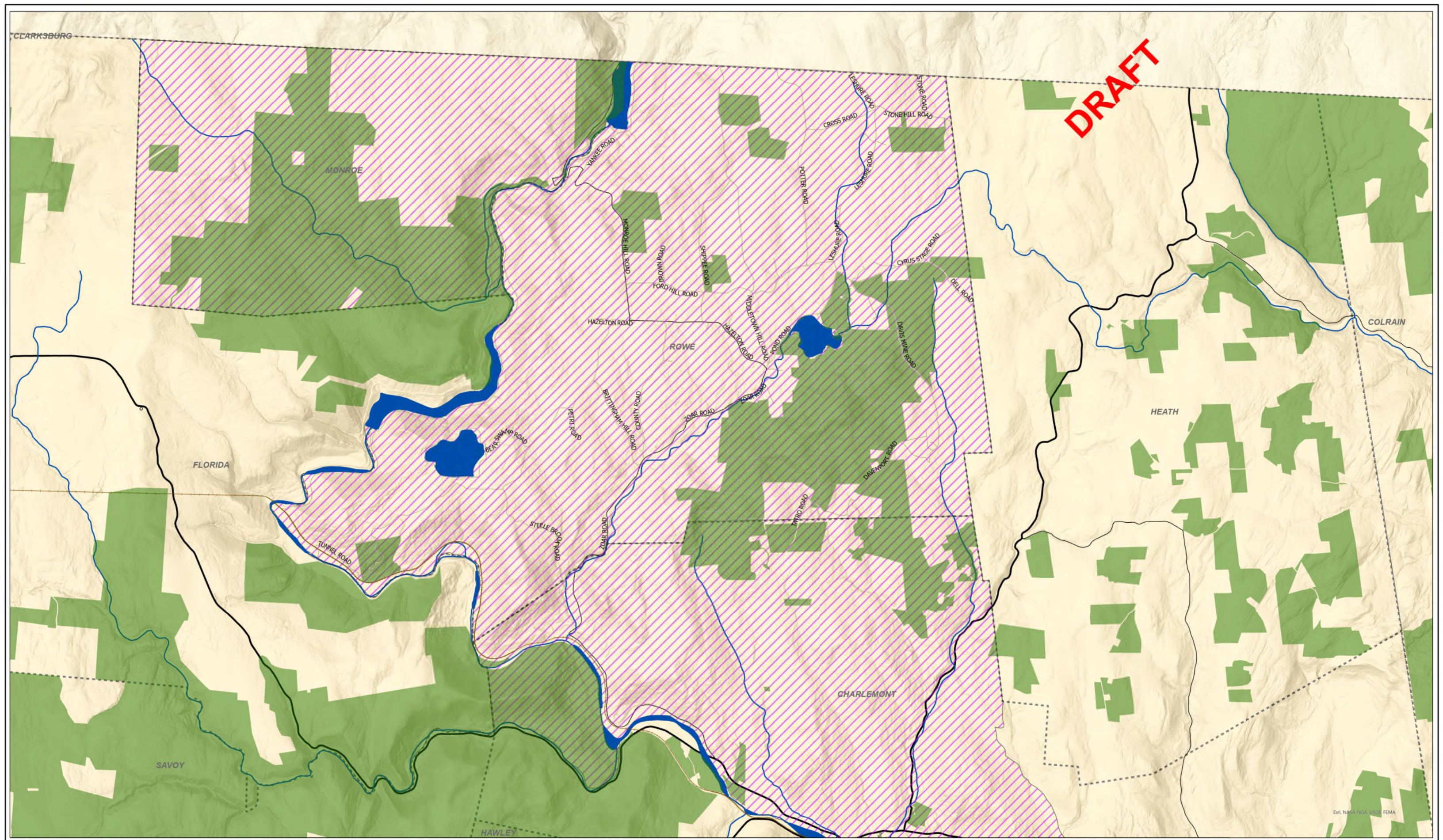
The Commonwealth of Massachusetts defines an environmental justice (EJ) community if any of the following conditions are met:

- Block group whose annual median household income is equal to or less than 65% of the statewide median; or
- 40% or more of the residents identifying as minority; or
- 25% or more of households lack English language proficiency; or
- Minorities comprise 25% or more of the population and the annual median household income of the municipality in which the neighborhood is located does not exceed 150% of the statewide annual median household income.

Rowe is considered an environmental justice community based on the first criterion above (see the *Environmental Justice* map on the following page). Although Rowe's median household income tends to be above 65% of the statewide household median, Rowe is in a census block with Monroe and the northern half of Charlemont, whose median household incomes fall well below the 65% threshold. Income is also not well distributed among Rowe residents, with 74% of households having an income below \$100,000.¹²



¹² American Community Survey 2016-2020 Five-Year Estimates

DRAFT



Town of Rowe
Open Space &
Recreation Plan 2024

Environmental Justice Area

-  Permanently Protected Open Space
-  Environmental Justice Population - Income



0 0.25 0.5 1 Miles

Sources: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

C.5 ANALYSIS OF POPULATION CHARACTERISTICS

Rowe is a predominantly white community with median household income around the county average. Residents are more evenly age-distributed than in many rural communities in Franklin County and UMDI population projections do not show Rowe with an increasing proportion of older residents. Rowe's 2021 Municipal Vulnerability Preparedness (MVP) plan identified that elderly and isolated residents, as well as those dependent on medical devices, may not have reliable access to information concerning emergencies or access to regular, reliable transportation. Ice storms and winter storms are thought to impact seniors the most, as even if they do have their own private transportation, icy roads are dangerous and difficult to traverse. Additionally, older residents are vulnerable to the negative health impacts associated with the extreme temperatures climate change will bring.

Rowe's population has fluctuated in the last century, but appears to be in a period of incremental growth since the 1950s. There is no sign that internal factors, such as changes in the economic sector or a decline in working-age residents who could start families, will drive population change in Rowe. However, the population and overall character of Rowe could be affected by external factors such as climate-driven migration or the recently established access to broadband. With thoughtful planning, any development that does come could be integrated in a way that sustains Rowe's existing rural character. Planning for change before it happens helps to protect open space and recreation resources while providing a livable community for people of all ages.

D. GROWTH AND DEVELOPMENT PATTERNS

D.1 PATTERNS AND TRENDS

Rowe's landscape ranges from the rolling terrain around Pelham Brook and its tributaries, to the two mountain ridges that run diagonally through town. These hills are covered with shallow ledge, soils, and topography poorly suited for development (for more information, see *Soils* in *Section 4*). Most historical development occurred along Pelham Brook and its tributaries in the late 1700s and 1800s. Additional residential development occurred in the late 1880s in southeast corner of the town around the Davis Mine; however, much of that housing is no longer standing. Today's land use patterns largely reflect these early settlement patterns, with residences and maintained open space occurring in the more gentle topography in the center of Rowe, the northeast corner, and the southwest corner.

Rowe is 87% forested, with an additional 5% of land in pasture, hay, and grassland and another 5% water and wetland (Table 3-7). Impervious cover and developed open space constitute 3% of the land area. However, while residential, commercial, and industrial impervious cover a small fraction of land cover, at least a quarter of Rowe's open space is found within parcels whose primary land use is residential or industrial, meaning that at least 32% of open space in Rowe is privately owned and much of it may be in smaller, residential-sized parcels.¹³

¹³ Land cover/land use dataset provided by MassGIS and released in May 2019. This statewide dataset contains a

Table 3-7: Rowe Land Cover, 2016

Land Use	Acres	%*
Deciduous Forest	7890.46	50%
Evergreen Forest	5713.11	36%
Water	407.17	3%
Grassland	405.49	3%
Pasture/Hay	370.91	2%
Impervious	328.91	2%
Wetland	251.34	2%
Developed Open Space	232.04	1%
Bare Land	58.24	0%
Scrub/Shrub	43.11	0%
Cultivated	3.81	0%

**Calculations based on a total of 15,705 acres of land in Rowe.*

Source: MassGIS

There are two large areas of contiguous undeveloped forestland: the more eastern ridge containing Mount Todd and Mount Adams that runs from the border with Heath to the Deerfield River, and the more western ridge that runs from Negus Mountain to the Vermont border along the Deerfield River. The Mount Todd-Mount Adams complex are largely protected by the Town, the state, and land trusts, but more than 500 acres at the southern end of the range are not permanently protected. Most of the western uplands are owned by utility companies who have placed some of it under conservation restrictions. However, most of Negus Mountain and the adjacent peak, both owned by a utility company, are not protected.

Slow but steady population growth over the past 50 years has not led to significant land conversion in Rowe. On average, about one new home has been built every four years since 2010: a total 4 new single-family homes were built in the 13 years between 2010 and 2022, with one of those replacing an existing house (Table 3-8). These new houses were distributed throughout Rowe, so no particular area is seeing more residential development than others.

combination of land cover mapping from 2016 aerial and satellite imagery, LiDAR, and other data sources. Land use data is derived from standardized assessor parcel information for Massachusetts. This dataset does not conform to the classification schemes or polygon delineation of previous land use data from MassGIS (1951-1999; 2005) so comparisons of land use change over time cannot be made using this current data.

<https://docs.digital.mass.gov/dataset/massgis-data-2016-land-coverland-use>

Table 3-8: New Homes Permitted in Rowe between 2010-2022

Year	Single-family
2012	1 (replacement)
2015	1
2018	2
Total	4

Source: Franklin County Cooperative Inspection Program, 2023

There has been only very modest residential growth and no new facilities in Pelham Lake Park in the last decade. There has been no commercial solar development in town. At this time, no large residential development projects or infrastructure expansions are planned for Rowe.

Future development patterns in Rowe are influenced by external factors such as regional employment and population trends, as well as by factors under the control of the community, such as infrastructure and land use controls.

D.2 INFRASTRUCTURE

D.2.1 TRANSPORTATION

Roads

Rowe is located north of Route 2 and west of Route 8A, but Rowe itself has no state highways running through it. Route 2 is the primary transportation corridor linking Rowe with towns to the west and east and to the nearest interstate (I-91). Route 8A connects to Heath Center and north to Wilmington, Vermont. Zoar Road is the principal connector from the town center south to Route 2. Rowe has a total of 49 miles of Town-maintained roads.¹⁴ About 14 miles (30%) of Rowe's roads are gravel.

Public Transit

There is no fixed-route public transit in Rowe. The nearest Franklin Regional Transit Authority (FRTA) bus stop is the western terminus of Route 41 in Charlemont Center (8.5 miles from Rowe's town center). The FRTA does operate demand response door-to-door transit service for seniors and the disabled in Rowe for a small fee. For a period of time, Peter Pan bus lines ran a daily service between Springfield, Northampton, North Adams, Williamstown, and Albany, NY, however this service was terminated as of October 1, 2018.

Rail

Rowe has no direct access to passenger rail. Amtrak passenger rail service to destinations north and south is available nearby in Greenfield. CSX Corporation owns a freight rail line that runs along Rowe's southeastern boundary. This rail line is one of the most important east/west freight rail lines in northern New England, moving up to 5 million tons annually of freight between eastern Massachusetts and

¹⁴ Massachusetts Department of Transportation, 2017 Road Inventory File.

eastern New York (near Albany). The nearest freight service station is on the Buckland side of Shelburne Falls.

Sidewalks

There are no sidewalks in Rowe. Rowe is not a Complete Streets community and has no formalized set of goals for making the community more walkable. Residents of Rowe primarily use trails for walking exercise, but many often walk quieter roads.

Bikeways

Though many residents enjoy cycling, there are no official bikeways in Rowe. Pelham Lake Park is a popular mountain biking destination, with a portion of trails built to a standard that they can be used for mountain biking and a planned effort by the Parks Department to evaluate which trails to improve and designate for mountain biking.

D.2.2 WATER SUPPLY

Three municipal properties in the town center (Rowe Camp and Conference Center, Town Hall, Avery Fountain) are serviced by public non-community drinking¹⁵ water groundwater wells. Residences in Rowe are entirely serviced by private wells.

D.2.3 WASTEWATER

All Rowe residents are on private septic systems. It is the role of the Board of Health to ensure new septic systems and wells are properly separated from one another following Rowe's town code.¹⁶

D.2.4 SOLID WASTE MANAGEMENT

Rowe's transfer station, called the Refuse Gardens, operates three days a week and is available to residents who purchase a dump tag for a minimal fee. Disposal of demolition, scrap metal, and recycling materials is free but restricted to one pickup bed load per month per resident. Residents have access to household hazardous waste collection events through the Franklin County Solid Waste Management District. Rowe's closed landfills are discussed further detail in *Environmental Challenges in Section 4*.

D.2.5 INTERNET AND CELL SERVICE COMMUNICATIONS

The Rowe Municipal Light Plant (MLP) was established to build and operate a broadband network for the town. The Fiber-to-the-Premise (FTTP) network delivers gigabit bandwidth to homes and businesses

¹⁵ Non-community wells are public water systems serving less than 15 service connections and less than 25 residents.

¹⁶ Rowe general bylaws require that an in-ground sewage system be 100 feet from any well or any other source of potable water and 75 feet from any property boundary line. In order to successfully pass a percolation test, there must be no bedrock, edge, or other impermeable layer; there must be a permeable subsurface layer 6 feet deep from the surface grade; there must be no seasonal surface water present for more than 30 days within 100 feet of the area of proposed usage; depth to groundwater must be greater than 6 feet; and subsurface soil must absorb water at an average rate of not less than 1 inch in 30 minutes for a total of not less than 3 inches in 90 minutes.

in town. Services include Wi-Fi and full phone service. The Rowe MLP is managed jointly with other member towns in the Wired West MLP Coop.

D.3 LONG TERM DEVELOPMENT PATTERNS

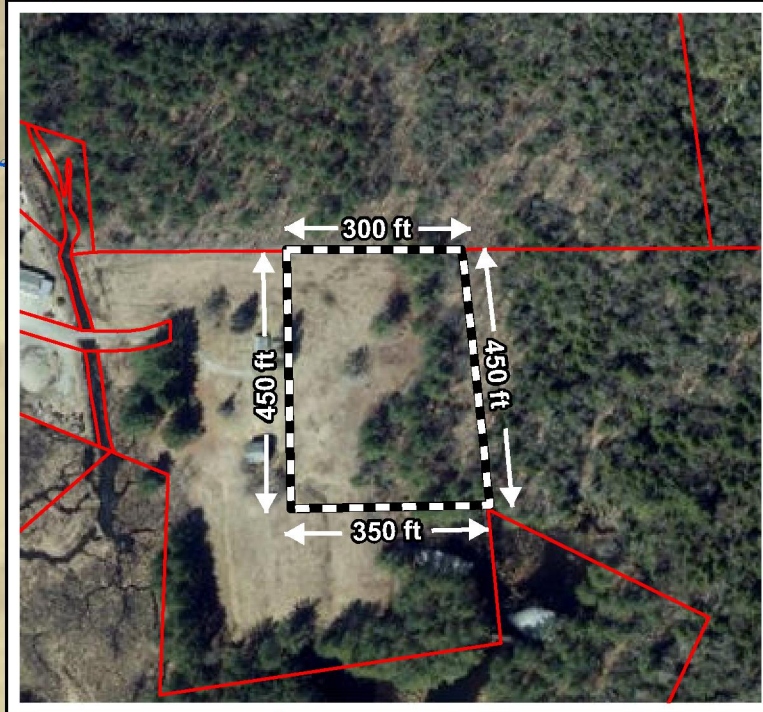
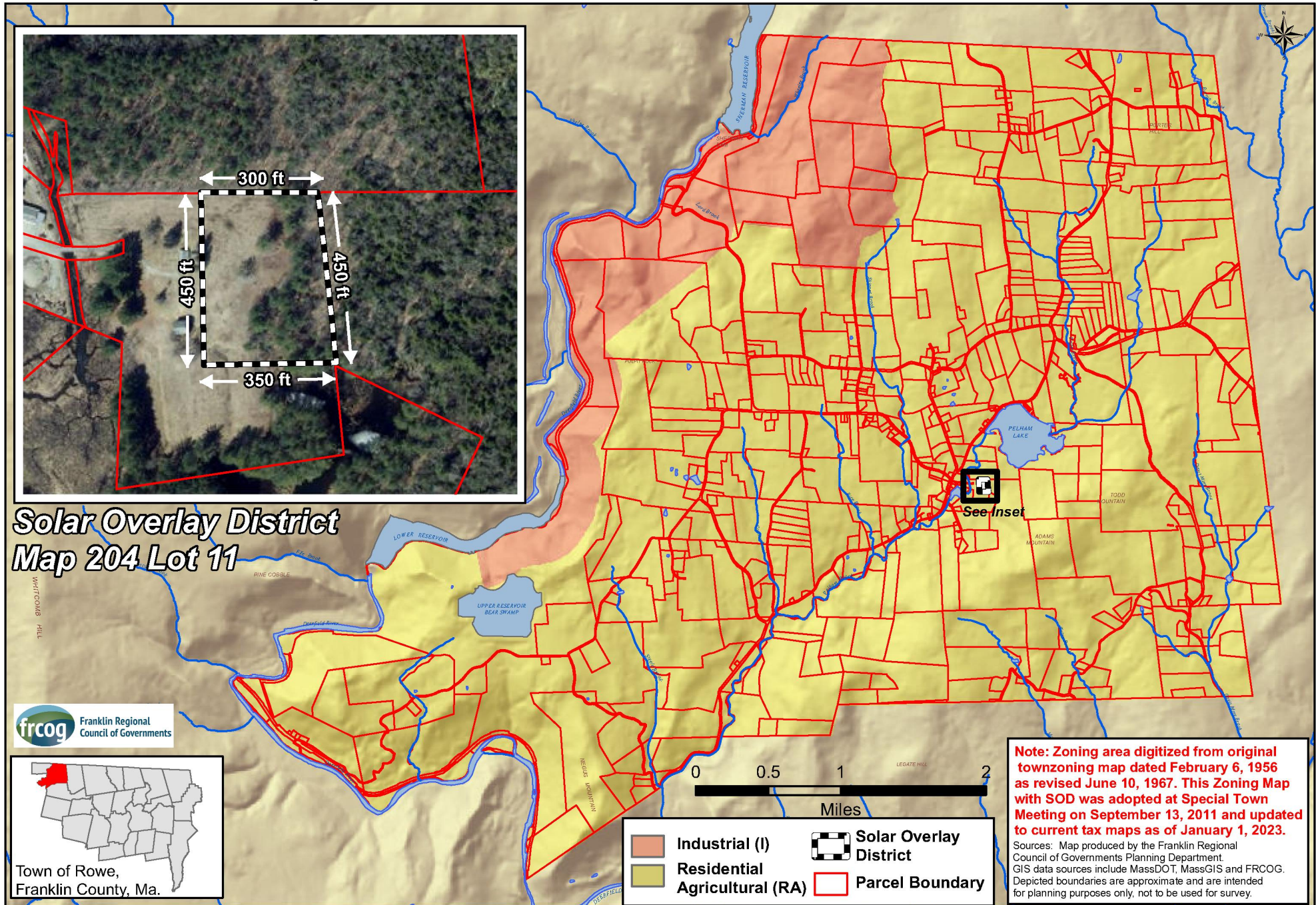
D.3.1 ZONING

Zoning bylaws proactively determine land use by regulating the built environment. These regulations are designed to give communities control over location, density, size, and use of structures and associated elements such as excavation, parking, landscaping, signs, and design standards. Subdivision regulations govern the division of land and creation of new roads and infrastructure.

Rowe has two zoning districts. The Industrial (I) District is a band of land at least a quarter of a mile wide along the town's western boundary (on the Deerfield River) from the border with Whitingham, Vermont to the Bear Swamp Reservoir. All of the parcels in this district are owned by private utility companies. The Residential-Agricultural (R-A) District covers the remainder of Rowe (see *Zoning* map on the following page).

Town of Rowe Official Zoning Map With Solar Overlay District

September 13, 2011



Solar Overlay District
Map 204 Lot 11



The following is permitted by right in both the R-A and I Districts:

- single-family residences;
- farm uses and farmstands;
- municipal, religious, educational, and not-for-profit educational uses;
- commercial office(s) for no more than two people in residential dwellings or on residential premises; and
- customary “home occupation” for no more than two people in residential dwellings or on residential premises.

The following are permitted by special permit in both the R-A and I Districts:

- two-family or semi-detached dwellings;
- for-profit recreational uses;
- agricultural greenhouses and nurseries;
- scientific research or development;
- restaurants and lodging;
- print and retail shops;
- general contractors;
- sawmills; and
- solar installations.

Large-scale activities associated with public utilities, with the exception of solar installations, are regulated differently in the two districts. Generating plants are allowed by special permit in the I District but prohibited in the R-A District. Transmission lines, substations, switchyards, and other accessory structures to public utilities are allowed by right in the I District and by special permit in the R-A District.

In addition to regulating uses, the zoning bylaw regulates the minimum lot size and dimensions needed to build a new structure or establish a new use (Table 3-9). Whether a lot is served by municipal water and sewer is important. A lot with no municipal sewer or water needs to be large enough to safely accommodate a drinking water well and a septic system, typically at least one acre (43,560 square feet), depending on soil conditions and the size of the septic system. In Rowe, lot sizes are four acres (174,420 square feet).

Table 3-9: Rowe Zoning Dimensional Requirements

Zoning District	Minimum Lot Area (sq ft)*	Minimum Lot Frontage (ft)*	Front Yard Setback (ft)	Side and Rear Yard Setback (ft)	Maximum Height of Buildings (ft)
Residential - Agricultural (RA)	174,420	400	60 (dwellings) 20 (non-dwellings)	30	35
Industrial (I)	174,420	400	60	30	35

**Minimum lot area and lot frontage are shown for Class A (dwellings) lots; these minimums are not specified for Class B (non-dwelling, no septic) lots.*

Source: Town of Rowe Zoning Bylaw, last revised 2019

Zoning allows by right solar installations of 10kW or less that are also an accessory to another use. Installations greater than 10kW up to 250 kW occupying no more than one acre are allowed by right in Solar Overlay District (located at the end of Sibley Road), but subject to site plan review. Installations that do not conform to the first two are allowed in the RA and I Districts by special permit and are subject to site plan review. Rowe's Solar Electric Generating Installations bylaw provision, adopted in 2011, is designed to facilitate the creation of large-scale ground-mounted solar installations while protecting public safety and environmental, scenic, natural, and historic resources. The provision prohibits the use of herbicides and encourages stormwater management.

Rowe's subdivision regulation were last updated in 1979 and does not to significant degree require low-impact development techniques such as required green infrastructure, nature-based solutions for stormwater management, measures to decrease impervious surface, or incentives to reduce sprawling development.

D.4 ANALYSIS OF ROWE'S DEVELOPMENT PATTERNS

Rowe's current land use controls allow the community some discretion in how the town would be impacted by certain kinds of development. However, Rowe's minimum lot size in the R-A District of 174,420 sq. ft. (4 acres) is on the high end of the range for Franklin County. Though most zone the minimum lot size as 2 acres, a few Franklin County communities permit building of single-family homes in 40,000 sq. ft. (~1 acre). Minimum lot requirements are important for protecting human health and safety by keeping septic systems safe distances from wells. In some circumstances, high minimum lot size also helps protect natural resources and reduce stormwater runoff by requiring more green space between areas of impervious surface. However, large-lot development in Rowe promotes a pattern of development that fragments the contiguous forest and unforested open space that are foundational to ecosystem services and climate resilience (see *Section 4*). Large-lot development can also exclude lower income buyers, drive up the cost of land across town, and increase the cost to taxpayers for municipal services.

While the rate of development is influenced by forces outside of the community's control, there are a number of zoning changes Rowe could consider in order to safeguard against the development of valued open space and to promote greater environmental protection where development is desired. If Rowe would like to discourage large-lot development or promote infill in certain areas, it may consider changing minimum lot sizes. Allowing two-family and accessory dwelling units by right could help keep residential development from fragmenting forest and open space while also encouraging housing type diversity to help people of all incomes and family sizes afford to stay in or move to Rowe. Under the current zoning, congregate elderly housing could not be built because multi-unit structures are prohibited, but a senior housing bylaw could allow for that. Cluster zoning, known also as open space development or natural resource protection zoning, is a tool that encourages new dwellings in a "subdivision" to be grouped together to maximize the amount of land kept as open space on the subdivided parcel. The threshold for this can be as low as the construction of two or more houses on a parcel.

Rowe could also consider developing bylaws that regulate large-scale non-residential development such as cell towers, wind energy, and marijuana establishments, as is common in other Franklin County towns. Rowe's current solar bylaws could be revised to be more specific about environmental standards and better direct solar development to where it is desired. Rowe could consider adopting a floodplain bylaw and floodplain district, as recommended in Rowe's 2016 Hazard Mitigation Plan, to protect riparian areas and help prevent flood damage to homes. Rowe could also consider following the lead of Franklin County towns who have adopted stormwater control bylaws or green development performance standards, which require applicants to meet site plan review specifications for landscaping and water reduction, tree preservation, construction waste management, topsoil recovery, and other measures.

E. PLANNING FOR THE FUTURE

Population growth in Rowe has been slow but steady over the past few decades. Quality, affordable housing is vital to the Rowe community and should be balanced with an understanding of the impacts of development on ecosystems, municipal services, and community character. While development in Rowe has stayed at a relatively low level, if development pressure were to increase, the steep topography, shallow soils, and the lack of public sewer and water infrastructure would constrain where commercial and residential development could go. However, given that Rowe is currently only lightly developed, there may still be significant land area available for certain kinds of development. Without a concerted effort to direct development to appropriate locations and protect critical resources, ecologically and culturally significant land, including areas most needed to bolster climate resilience, may be vulnerable.

Rowe has generally been forward thinking in its approach to preserving the places it loves. With Pelham Lake Park, the Town has a public recreation area that provides ample recreation opportunity and protects a large swath of the town's Biomap Core Habitat area (for more information in BioMap Core Habitat, see *Documenting and Mapping Biodiversity and Ecosystems* in Section 4). Many residents have

protected land either temporarily through the state’s Chapter 61 tax abatement program or permanently through conservation restrictions and agricultural preservation restrictions (for more information on temporarily and permanently protected land in Rowe, see *Section 5*). The town has also supported the Franklin Land Trust, New England Forestry Foundation, and the Commonwealth in their purchase of land for recreation and ecological protection. Determining conservation priorities, as well as other options for protecting land and directing development away from important forests and farmland, will require coordination between town leaders. Future-oriented planning can help Rowe identify ways to protect land, direct any new development in a targeted manner, and make the town’s current recreational resources and open spaces more fully accessible to its diverse age demographic.

SECTION 4

ENVIRONMENTAL INVENTORY AND ANALYSIS

The Environmental Inventory and Analysis Section of the Rowe Open Space and Recreation Plan provides a comprehensive inventory of the significant ecosystems and cultural resources in the town. The inventory identifies climate trends, soils, special landscape features, surface waters, aquifers, vegetation, fisheries and wildlife, unique environments and scenic landscapes, and areas of environmental concern in Rowe. Each section examines the basic ecological services and cultural amenities that the natural systems and sites provide to people who live in, work in, and visit Rowe and what additional conservation or management measures could sustain and enhance these resources. This section also acknowledges that nature has value in its own right, independent of human uses, and encourages protection of the natural world regardless of its benefit to humans.

A. CLIMATE CHANGE IMPACTS

Climate change is expected to bring a number of changes to the region, including:

- Significant temperature changes, with more seasonal variability, higher average temperatures, and longer heat waves
- Shorter winters with less snow
- More intense precipitation events
- Increased occurrence of extreme weather events

These changes in the climate are likely to lead to negative impacts, such as:

- More severe droughts
- More flooding and erosion that threatens roads and buildings
- Higher risk of infectious diseases
- Greater chance of wildfires
- Disruption to local industries such as agriculture, forestry, and tourism
- More rapid spread of invasive species

These climate change impacts are described in the following subsections.

The natural environment simultaneously provides a means to mitigate climate change and is vulnerable to its effects. Local decisions on land conservation and management will impact how ecosystems and

the benefits they provide will function in the future. The following are overviews of two major expected impacts of climate change: temperature and precipitation, as well as a brief overview of the impacts of climate change on these local natural resources and the Rowe community.¹

A.1 TEMPERATURE CHANGES

Temperature in the Northeast is expected to increase more than any other region of the United States and increase faster than the rest of the world.² Over the last century, annual temperature in the Northeast has been on average 1.6°F warmer (mean temperature 1901 - 2000 46.9°F) than the preindustrial era.³ The median modeled projection is that it could be 5.46°F warmer on average by midcentury and 7.73°F warmer by late century than it was in 2000 (Figure 4-1). By 2070, the climate of Massachusetts could look like the current mid-Atlantic states (under low-emission models) or South Carolina (under high-emission models). This warming will be particularly severe at higher latitudes, higher elevations, and during the winter season.⁴

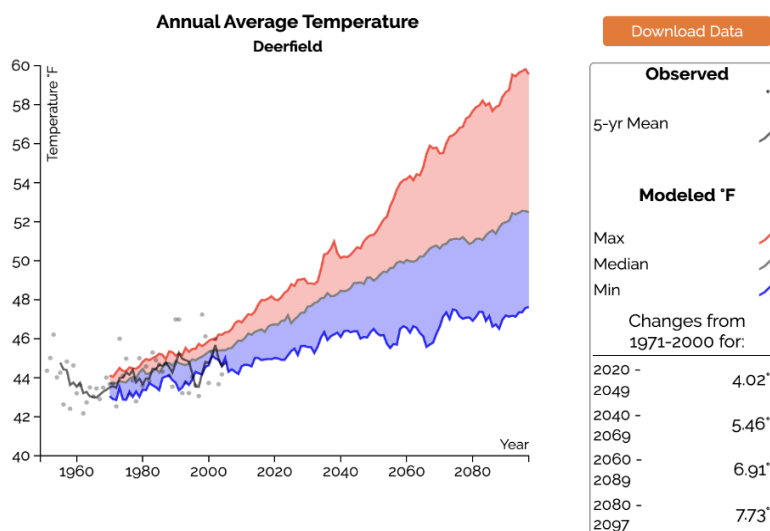


Figure 4-1: Observed and Predicted Change in Annual Average Temperature, 1971-2090

Source: Resilient MA: Climate Change Clearinghouse for the Commonwealth.

In addition to average temperature increases, extreme temperatures are expected to be hotter, more frequent, and last longer. From 1970 to the mid-2000s, the Deerfield River watershed averaged less than

¹ The information presented in this and the following section draws on Massachusetts government resources, including the Northeast Climate Adaptation Center at UMass Amherst, the recently completed Forest Stewardship Plan for Pelham Lake Park, and the regional [Watershed-Based Plan for the Deerfield River](#) from Franklin Regional Council of Governments (FRCOG). All of these resources propose methods by which landowners and towns can mitigate climate change impacts on their local populations and resources.

² Karmalkar, A. V., and R. S. Bradley, 2017: Consequences of global warming of 1.5 °C and 2 °C for regional temperature and precipitation changes in the contiguous United States. PLOS ONE, 12 (1), e0168697. doi:10.1371/journal.pone.0168697.

³ <https://climateactiontool.org/node/19>

⁴ https://www.ncdc.noaa.gov/cag/statewide/time-series/19/tavg/60/6/1895-2022?base_prd=true&begbaseyear=1901&endbaseyear=2000

5 days per year when temperatures reached over 90°F.⁵ It is expected that by 2050, there will be anywhere from 4 to 40 additional days per year in the watershed with temperatures over 90°F. The watershed is also expected to experience fewer days when temperatures drop below freezing (32°F).

A.2 PRECIPITATION CHANGES

The Northeast has experienced a greater increase in both overall precipitation and extreme precipitation events than the rest of the U.S. in the past several decades. Average annual precipitation increased by 10% from 1895 – 2011⁶ and very heavy rainfall events increased by 71% from 1958 – 2012 (Figure 4-2). These trends are expected to continue in the future (Figure 4-3). Precipitation patterns are also expected to change, with increased precipitation arriving in short, heavy periods, likely causing more flooding events, followed by long dry spells that will lead to drought.

Winter precipitation will continue to increase but will be more likely to fall as rain than snow. This will decrease measurable snowpack, an important element in recharging local aquifers, and decrease the amount of lake ice, which will impact ice fishing recreation on Pelham Lake. Average precipitation is likely to increase during winter and spring, but not change significantly during summer and fall. However, rising temperatures will melt snow earlier in spring and increase evaporation, making the soil drier during summer and fall. Flooding is likely to be worse during winter and spring, and droughts worse during summer and fall.

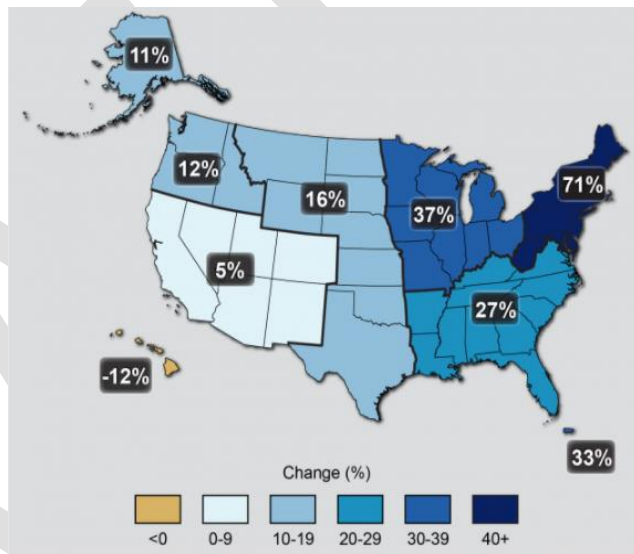


Figure 4-2: Observed Change in Very Heavy Precipitation, 1958-2012

Source: updated from Karl et al. 2009, *Global Climate Change Impacts in the United States*.

⁵ <https://resilientma.org/map/>. Accessed January 2021.

⁶ <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-ma.pdf>

The greatest change is expected to occur in increased intensity in rainfall, especially during the winter. Precipitation from extremely heavy storms has increased 70% since 1958. Observed annual precipitation in Massachusetts was 47 inches over the last three decades. By 2050, total annual precipitation is expected to increase 2% to 13%, or by roughly 1 to 6 inches. In recent decades, the Deerfield River Watershed has averaged around 45 inches. By 2050, the annual average is expected to either remain the same but occur in heavier and shorter intervals, or increase by up to 12 inches a year. Precipitation projections are generally less certain than temperature projections.⁷

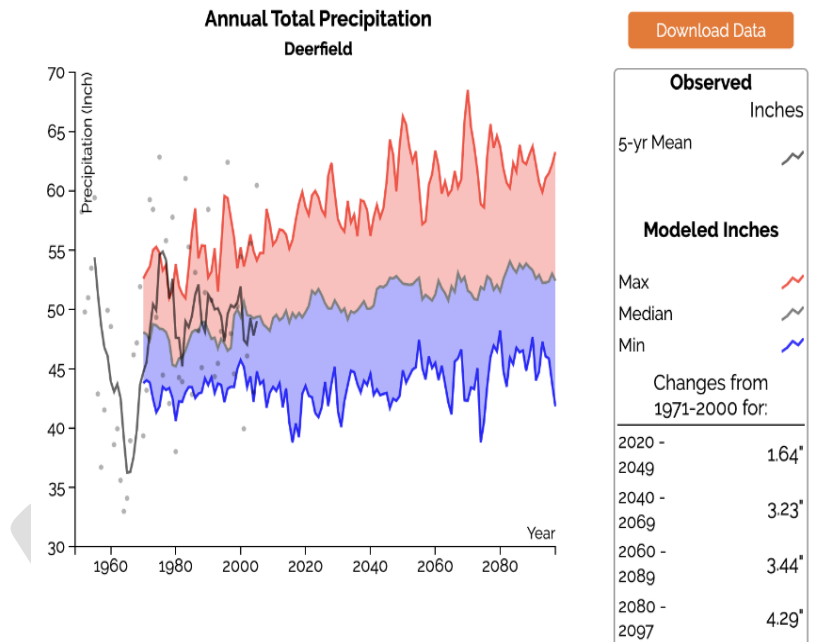


Figure 4-3: Observed and Predicted Change in Annual Average Precipitation, 1971-2090

Source: Resilient MA: Climate Change Clearinghouse for the Commonwealth.

⁷ <https://resilientma.org/map/>. Accessed January 2021.

A.3 EFFECTS OF CLIMATE CHANGE

A.3.1 TEMPERATURE AND PRECIPITATION

Climate change is already altering natural habitats and impacting communities in various ways. Ecosystems in Rowe that are expected to be particularly vulnerable to climate change include coldwater streams and fisheries, spruce-fir forests, hemlock forests, northern hardwood forests, vernal pools, and bogs. Warming temperatures and changes in precipitation will push plant and animal species northward or to higher elevations. Higher temperatures, along with changes in stream flow, will degrade water quality. Coldwater aquatic fish species will decline, while an increase in stronger storms will lead to more flooding and erosion. A shift to winter rains instead of snow will potentially lead to less spring groundwater recharge because precipitation is running off frozen ground into streams instead of infiltrating into the soil. Warmer winter and spring temperatures are changing the timing of leaf out of vegetation and insect hatching, leading to, among other things, mismatch in the life interdependent life cycles of insects, animals, and plants. Additionally, non-native invasive species adapted to warmer climates will continue to compete with native plants.

Temperature and Precipitation Effects on People & Industry

Milder winters, including loss of snowpack, and earlier spring conditions are expected to impact local public health, tourism, agriculture, and forestry industries.⁸ **These conditions favor the spread of ticks and tick borne diseases**, particularly deer ticks (*Ixodes scapularis*), which carry multiple infectious diseases. Deer ticks become active above 45°F and will enjoy a longer active season with higher temperatures. Higher temperatures can also **increase incidents linked to respiratory conditions such as asthma or allergies** by affecting the length and severity of pollen season.

Shorter, milder winters with **less snowpack will impact local ski tourism** economies in Wilmington, VT and Charlemont, MA, reducing direct and indirect job opportunities for citizens of Rowe. This will also decrease winter recreation opportunities for locals such as snowmobiling and skiing. Water levels for rafting and fishing tourism in the Deerfield River are currently controlled by the hydroelectric companies, which may buffer impacts from changing precipitation to some degree. For Rowe's resource-based industries, shorter, milder winters without deep freeze will make it **more difficult for loggers** to meet winter road conditions required for operation. **Maple syrup quantity and quality is expected to decline**. Extreme heat can also **impact the health and safety of outdoor workers**, as well as Rowe residents whose health conditions may be exacerbated by extreme heat.

A.3.2 EXTREME WEATHER

An increase in extreme weather events, including heavy rains, ice storms, microbursts, and hurricanes, will affect natural resources and human communities. Loss of roads, bridges, culverts, buildings, farmland, forests, crops, and temporary loss of access, internet, and electricity are a few of the impacts that have already been experienced in the region from increased extreme weather. Increased extreme

⁸ 4th National Climate Assessment

rainfall events can lead to agricultural flooding, particularly interrupting haying schedules, upon which many people rely for either income or for livestock. Sea level rise and more extreme storms on the coast may begin to push some of the millions of people living along the north Atlantic seaboard to migrate inland, placing development pressure on rural areas such as Rowe. Increased flooding along waterways throughout western Massachusetts may also drive more local resettlement.

A.3.3 GROWING SEASON

Since the 1960s, the growing season in Massachusetts has increased by 10 days. By 2055, climate models project it will increase by 19 days and extend to an additional 1 to 2 months by the end of the century. This longer growing season is partially responsible for increased forest growth and carbon sequestration and may be positive for agricultural yields, as farms may benefit from a longer growing seasons and the fertilizing effect of carbon dioxide. However, the increasing variability in precipitation and temperature can cause late season cold spells that damage early leaves or buds, issues with timing of planting and harvest, and reduce crop yields.

A.3.4 MASSACHUSETTS CLIMATE IMPACT ASSESSMENT FOR THE REGION

Figure 4-4, from the *Massachusetts Climate Impact Assessment*, shows the two most urgent impacts per sector for the Berkshire and Hilltown region (more than two impacts are listed in the case of ties).⁹ According to the report, impacts in all sectors of this region tend to stem from changes to the natural resources that are critical to the economy and way of life in the region.



⁹ Executive Office of Energy and Environmental Affairs (EEA) 2022 Massachusetts Climate Change Assessment <https://www.mass.gov/doc/2022-massachusetts-climate-change-assessment-december-2022-volume-iii-regional-reports/download>

Figure 4-4: Most Urgent Impacts by Sector for the Berkshires and Hilltowns Region

Source: 2022 Massachusetts Climate Change Assessment

The Commonwealth's assessment highlights many of the changes the Rowe community is already anticipating in their Hazard Mitigation Plan (HMP), Municipal Vulnerability Preparedness (MVP) Plan,¹⁰ and Pelham Lake Park Forest Stewardship Climate Plan.¹¹ vector-borne diseases, impacts to forest health, impacts to freshwater ecosystems, the risk of wells running dry, and changes to recreational and tourist opportunities. The assessment also highlights the possibility that the population of Rowe could change at an unexpected rate, as mentioned in *Section 3*, increasing the need to protect important natural areas and ecosystems services through proactive planning.

A.3.5 MUNICIPAL VULNERABILITY PLANNING BY THE TOWN OF ROWE

Rowe participated in a Community Resilience Building workshop in March 2020 in which residents identified the current concerns and challenges presented by climate hazards.¹² The Rowe Municipal Vulnerability Plan (MVP) specifies the following top categories of concern for the community:

- The power grid's vulnerability to natural hazard impacts
- The vulnerability of elderly residents, isolated residents, and residents who are dependent on medical devices in times of extreme weather and hazardous events
- The vulnerability of gravel roads and road infrastructure to extreme weather events
- The increasing presence of invasive species
- The vulnerability of northern hardwood and conifer forests to changing climate
- The threat of wildfire and the lack of wildfire fighting infrastructure
- The rise of vector-borne diseases
- The lack of formal emergency response planning for extreme weather and hazardous events

While climate change will continue to be a major challenge, local efforts and decisions have real and lasting impacts on mitigating and adapting to future climate change. **One of the most effective and least costly strategies is to preserve existing natural areas and manage them for increased resilience to climate change.**

B. DOCUMENTING AND MAPPING BIODIVERSITY AND ECOSYSTEMS

Native plant and wildlife populations are declining locally and globally due to a number of factors. Biodiversity refers to the diversity of living forms, from genes to ecosystems. Ecosystems are the complex natural systems that sustain that life. Biodiverse environments—those with a range of intact and biodiverse ecosystems—are essential for the natural function of ecosystem services, such as water

¹⁰ <https://www.mass.gov/doc/rowe-report/download>

¹¹ https://rowe-ma.gov/files/Rowe_Pelham_Lake_Park_FSCP_2022-2032_FINALv2_8-4-22.pdf

¹² A community-driven planning process developed by The Nature Conservancy:
<https://www.communityresiliencebuilding.com/>

and air purification, groundwater storage, food, and forest products. They also provide essential habitat for wildlife, insect, plant, and fungi species that have adapted to these places. Biodiverse environments are also more resistant and resilient to impacts from invasive species, disease, climate change, and human impacts because as a community accumulates species, there is a higher chance that at least some of the species are able to adapt to a changing environment.

In addition to the changing climate, a major cause of biodiversity loss is **human-driven land conversion and fragmentation**. Fragmentation is a significant concern because it impedes mixing of reproductive populations, inhibits movement of animals with large home ranges, and introduces edge effects, where survival along fragmented edges decreases due to predation, exposure to weather, and other stressors. One way to understand the potential impact of development on natural systems and the community's well-being, so that they can be preserved and protected, is to document the ecological value of the town's natural systems on multiple scales.

Development, when sited in undeveloped areas rather than as infill in already developed areas, can require new infrastructure such as roads, power, water, and wastewater systems. This kind of infrastructure both depends upon and impacts critical natural systems. The Massachusetts Resilient Lands Initiative urges the Commonwealth to continue moving toward critical housing and economic goals, but doing so by building in less sensitive places and growing the overall proportion of protected open space.¹³ Town officials and residents can reference ecological information when making future land use decisions that protect natural communities and the function of natural systems, such as where to encourage housing and where to protect open space. Infill, where little new infrastructure may be required, is one strategy for potentially reducing impacts on natural resources and open space while still accommodating the demand for housing.

Proactive conservation decisions based on scientific assessment can help a Town maximize the use of limited resources. Very often, the option for a Town to conserve land arises because there is an imminent threat that a parcel will be developed, but there is not actually enough time to take action. Sometimes the Town has an opportunity to conserve land that may have low conservation value compared to other parcels, but because of the sense of urgency to act quickly, precious resources are used to protect the parcel. Prioritizing parcels with high conservation value optimizes the benefits of open space protection given limited resources, particularly for municipalities exercising their Right-of-First-Refusal for lands coming out of Chapter 61 status.

The University of Massachusetts's Center for Agriculture, Food, and the Environment (CAFE) manages a clearinghouse of land conservation information sources and tools developed by a variety of organizations that are available to guide the decision making of Massachusetts land conservation practitioners. The Land Conservation Tools website links to commonly used tools such as BioMap,

¹³ Executive Office of Energy and Environmental Affairs (EEA) 2023 Massachusetts Resilient Lands Initiative: <https://www.mass.gov/info-details/resilient-lands>

Audubon's Mapping and Prioritizing Parcels for Resilience, and The Nature Conservancy's Resilient and Connected Landscapes, among others, that help decision-makers identify important criteria for prioritization and filter open space parcels through that criteria.¹⁴ The following section explores how these tools can help recommend specific conservation priorities for Rowe.

B.1 ECOLOGICAL MAPPING TOOLS

For the purposes of identifying areas in Rowe that may need to be considered for protection during the Open Space & Recreation planning process, a brief analysis was conducted using data from BioMap, the Natural Heritage and Endangered Species Program (NHESP), the UMass Conservation Assessment and Prioritization Program, and Mass Audubon. A summary of findings for each data set follows.

B.1.1 BIOMAP

In 2022, the Massachusetts Division of Fisheries and Wildlife and The Nature Conservancy launched the newly updated *BioMap: The Future of Conservation in Massachusetts*. This project, produced by NHESP, is a comprehensive biodiversity conservation plan for Massachusetts that focuses primarily on state-listed rare species and exemplary natural communities. It aims to guide strategic biodiversity conservation in the state by focusing land protection and stewardship efforts in the context of projected effects of climate change. BioMap **Core Habitat** areas include the most viable habitat for rare plants and rare animals and exemplary natural communities. **Critical Natural Landscapes** include buffer areas around the Core Habitats, large undeveloped patches of vegetation, large "roadless" areas, and undeveloped watersheds. The Core Habitat areas were identified, through field surveys, as supporting viable populations of rare plant and animal species, whereas the Critical Natural Landscape areas were determined through analyses using Geographic Information Systems (GIS) mapping programs.¹⁵

BioMap Core Habitat and CNL in Rowe are shown on the *Plant & Wildlife Habitat Map* and can be summarized as follows:

- 38% of Rowe's land area is classified as BioMap Core Habitat.
- 80% of Rowe's land is classified as BioMap Critical Natural Landscape.
- The largest patches of BioMap Core Habitat in Rowe are located on Negus Mountain, along the Deerfield River, along Pelham Brook, and on the Mount Adams-Mount Tom Range. These patches of Core Habitat are linked to more Core Habitat in Mohawk Trail State Forest (Charlemont), Monroe State Forest (Monroe), and beyond along the Hoosac Range and northward in the Deerfield River watershed.
- There are six areas of Aquatic Core habitat totaling 768 acres. The length of Pelham Brook, Steele Brook, and the Deerfield River are classified as Aquatic Core habitat. Pelham Lake and half of the shore of Bear Swamp Upper Reservoir are also classified as Aquatic Core.
- There are twelve areas of Rare (wildlife) Species Core habitat totaling 2,866 acres. See NHESP Priority Habitat of Rare Species list below for location.

¹⁴ UMass Amherst CAFÉ Land Conservation Tools: <https://ag.umass.edu/resources/land-conservation-tools>

¹⁵ BioMap: <https://www.mass.gov/service-details/biomap-the-future-of-conservation-in-massachusetts>

- There are three areas of Natural (plant) Community Core habitat totaling 13 acres. These NHESP Natural (plant) Communities are high-terrace floodplain forest; rich, mesic forest; and high-energy riverbank community that are found along the Deerfield and on steep, mountainous slopes.

B.1.2 NHESP NATURAL HERITAGE ATLAS

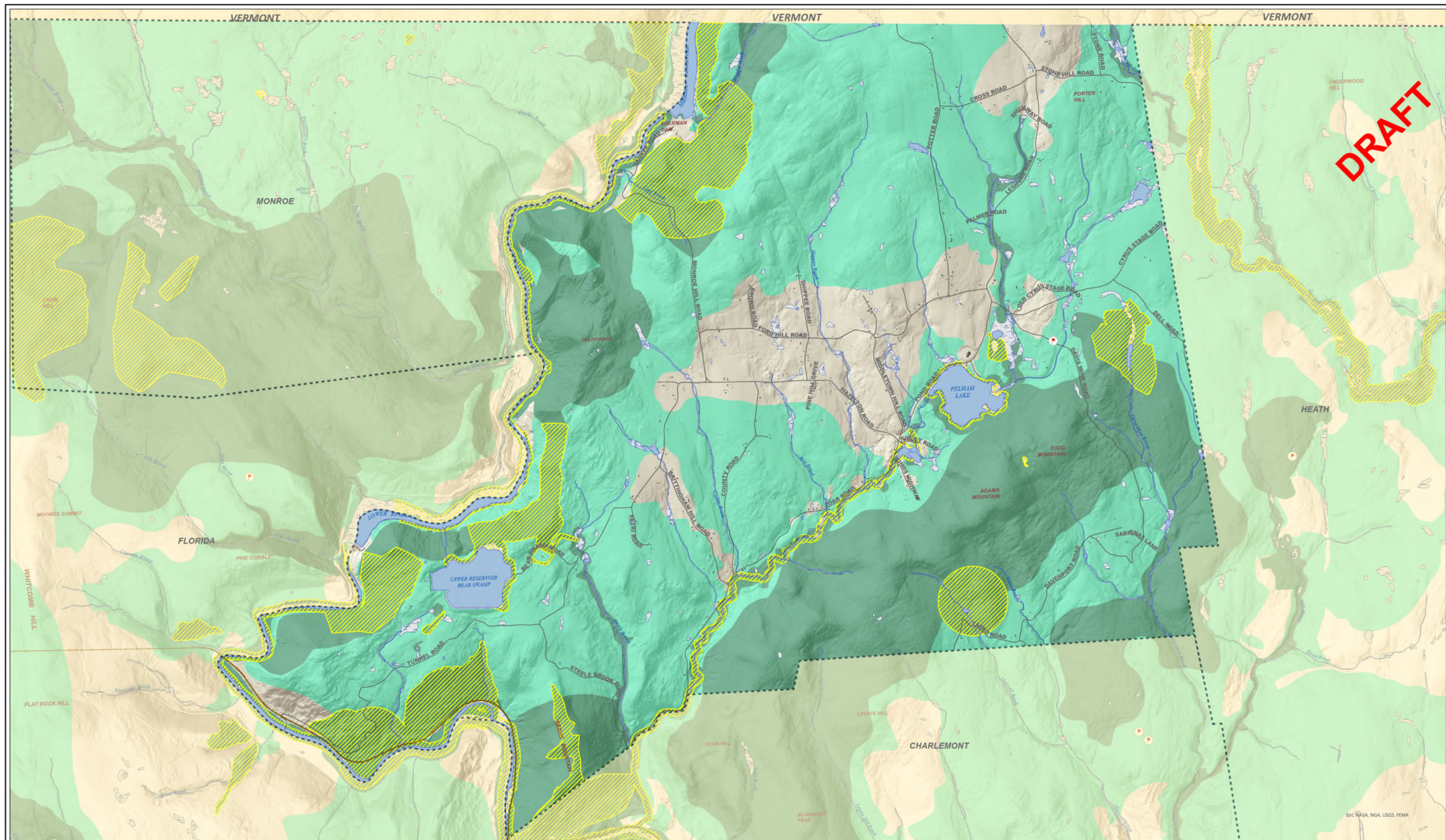
Priority and Estimated Habitats is a program administered by NHESP. Identification and mapping of Priority and Estimated Habitats is based on the known geographical extent of habitat for all state-listed rare or endangered species, both plants and animals, and is codified under the Massachusetts Endangered Species Act (MESA). Habitat alteration within Priority Habitats is subject to regulatory review by NHESP.¹⁶

The 15th edition of the NHESP Natural Heritage Atlas (effective July 2021) shows the boundaries of Priority Habitat of Rare Species in Rowe. Certain kinds of development in Priority Habitat must be reviewed by the NHESP for compliance with MESA. According to the 2021 Atlas, NHESP Priority Habitats in Rowe occur in:

- Pelham Lake and nearby wetland areas
- Around wetlands at the north end of Pelham Lake Park
- Around the Mill Pond, the wetland just east of the pond, and Pelham Brook to the confluence of the Deerfield River
- In the Maxwell Brook Wildlife Management Area (WMA)
- The Deerfield River for its entire length along the Rowe border (excluding the reservoirs)
- On select steep mountainsides in the southwest corner of town, including the southeast side of Negus Mountain
- Around the Bear Swamp Upper Reservoir
- On select steep slopes in the northwest of town, including part of Rowe State Forest

The NHESP Priority Habitats in Rowe are shown on the following *Plant & Wildlife Habitat Map*.

¹⁶ NHESP Priority and Estimated Habitats: <https://www.mass.gov/service-details/regulatory-maps-priority-estimated-habitats>



DRAFT

Town of Rowe

Open Space & Recreation Plan 2024

Plant & Wildlife Habitat

Natural Heritage & Endangered Species Program

- Certified Vernal Pool
- Priority Habitats of Rare Species

BioMap

- Core Habitat
- Critical Natural Landscape

- Wetland
- Waterbody
- Stream
- Local Road
- Rail Line

- Building Structure
- Town Hall

0 0.25 0.5 1 Miles

Franklin Regional Council of Governments

Sources: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

B.1.3 CONSERVATION ASSESSMENT AND PRIORITIZATION SYSTEM (CAPS)

CAPS is an approach to prioritizing land for conservation based on an assessment of ecological integrity for various ecological communities.¹⁷ Updated in 2021, the analysis produces an Index of Ecological Integrity (IEI) that delineates the relative wildlife habitat and biodiversity value of any point on the landscape based on principles of landscape ecology. The colored indexes for each ecological community are shown in Figure 4-5 for the 50% of the undeveloped landscape in Rowe with the highest IEI values.

According to the 2021 CAPS data, forest ecological integrity (green) is greatest in Rowe:

- On the mountain range from Mount Todd to Rowe's southern boundary;
- On Negus Mountain;
- Surrounding Steele Brook (excluding the headwaters area);
- In the hills on the west side of Rowe that surround Pulpit Rock, and
- In the undeveloped forest on each side of Middletown Hill Road

In addition, power company utility right-of-ways in Rowe score as high value for its dry, open grasslands (yellow). The Deerfield River, the wetland on the western boundary north of Upper Bear Swamp Reservoir, and parts of Steele Brook, Pelham Brook, and Davis Mine Brook exhibit high freshwater wetland and aquatic values (blue).

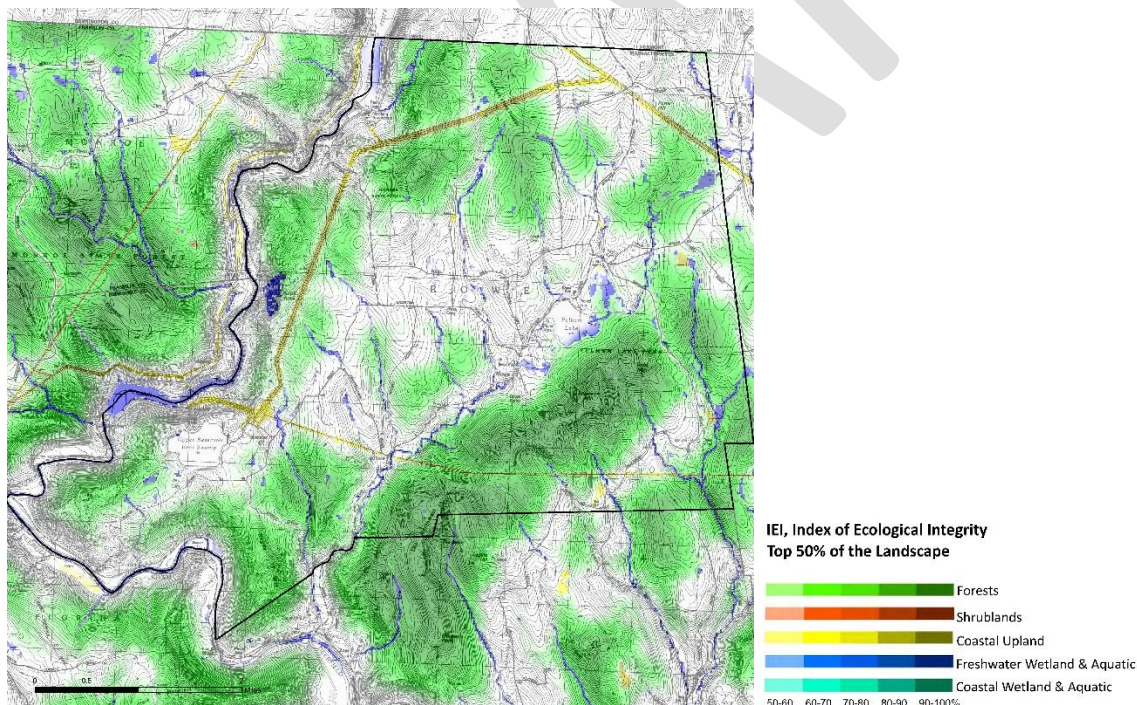


Figure 4-5. CAPS Index of Ecological Integrity (IEI), Town of Rowe

¹⁷ CAPS maps are prepared by the University of Massachusetts Amherst: <http://www.umasscaps.org>

B.1.4 MASS AUDUBON'S MAPPING AND PRIORITIZING PARCELS FOR RESILIENCE (MAPPR)

Mass Audubon, in partnership with The Nature Conservancy and LandVest, developed MAPPR to allow Massachusetts conservationists to rapidly identify specific parcels that, if protected, could contribute the most to achieving land protection goals. MAPPR compiles the previous work of BioMap2¹⁸ and TNC's Resilient Sites, along with other digital parcel information into one online mapping tool.¹⁹ MAPPR allows land conservationists to identify the parcels within an area of interest that are the highest priorities for protection based on habitat quality, climate change resilience, and other metrics such as parcel size and adjacency to existing protected parcels.

Resilience Model

The resilience model uses The Nature Conservancy (TNC) 2012 version of the Resilient Sites for Conservation mapping project. These maps identified “natural strongholds”—places where the direct effects of climate change are moderated by complex topography and connected natural cover. In these sites, species can find areas of suitable moisture and temperature within their local neighborhood. These “micro-climates” buffer the impacts of climate change by providing species with a variety of options, including allowing resident species populations to retreat to these refugia and help ensure that changes in the composition and structure of natural communities will be more gradual.

About a dozen parcels along the Deerfield River in the southwest corner of Rowe rank as high priority for protection for climate change resilience (Figure 4-6). These areas are very steep and remote, providing access to water and riparian areas, as well as a diversity of elevation and microclimates. While a few of these parcels are permanently protected, a number may still be vulnerable to development by the railroad or the utilities.

¹⁸ BioMap2 is the second version of BioMap, released in 2010. It is the predecessor to the current version released November 2022: <https://www.mass.gov/service-details/biomap-the-future-of-conservation-in-massachusetts>

¹⁹ MassAudubon MAPPR: <https://www.massaudubon.org/our-conservation-work/advocacy/shaping-the-future-of-your-community/current-projects/mappr-project>

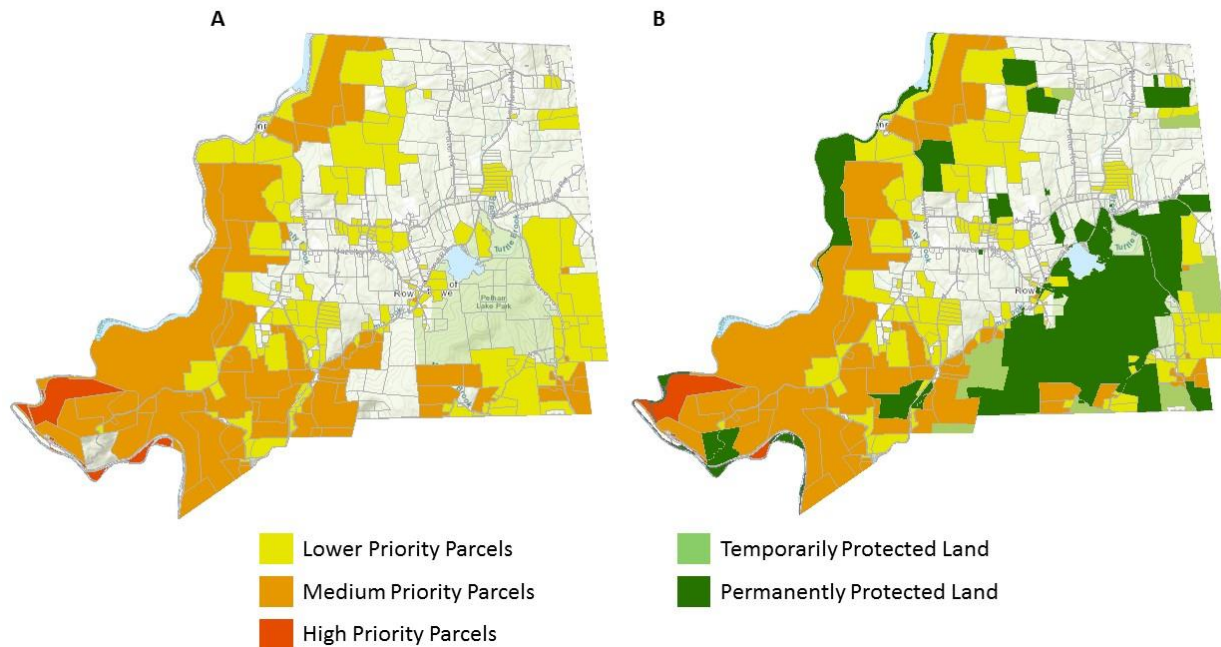


Figure 4-6: A) Parcels of land identified as a priority for protection in Rowe by the MAPPR Resilience Model analysis. **B)** Permanently and temporarily protected parcels in Rowe overlaid on MAPPR Resilience Model data.

Sources: Rowe Assessor 2023, MassGIS, Mass Audubon.

Balanced Model

The balanced model combines together for a composite score data from TNC Resilient Sites, UMass Critical Linkages, BioMap2 Core Habitat and Critical Natural Landscape, along with parcel size, block size, adjacency to existing protection, and under-represented settings.

Around half of Rowe's land area ranks as a high priority for protection under the balanced model (Figure 4-7). Negus Mountain and the nearby peak in the southwest corner of Rowe, western Rowe, and an area along Zoar Road at the southwest end of the Mount Todd-Mount Adams range are all high priority for protection when the wider range of ecological factors are considered.

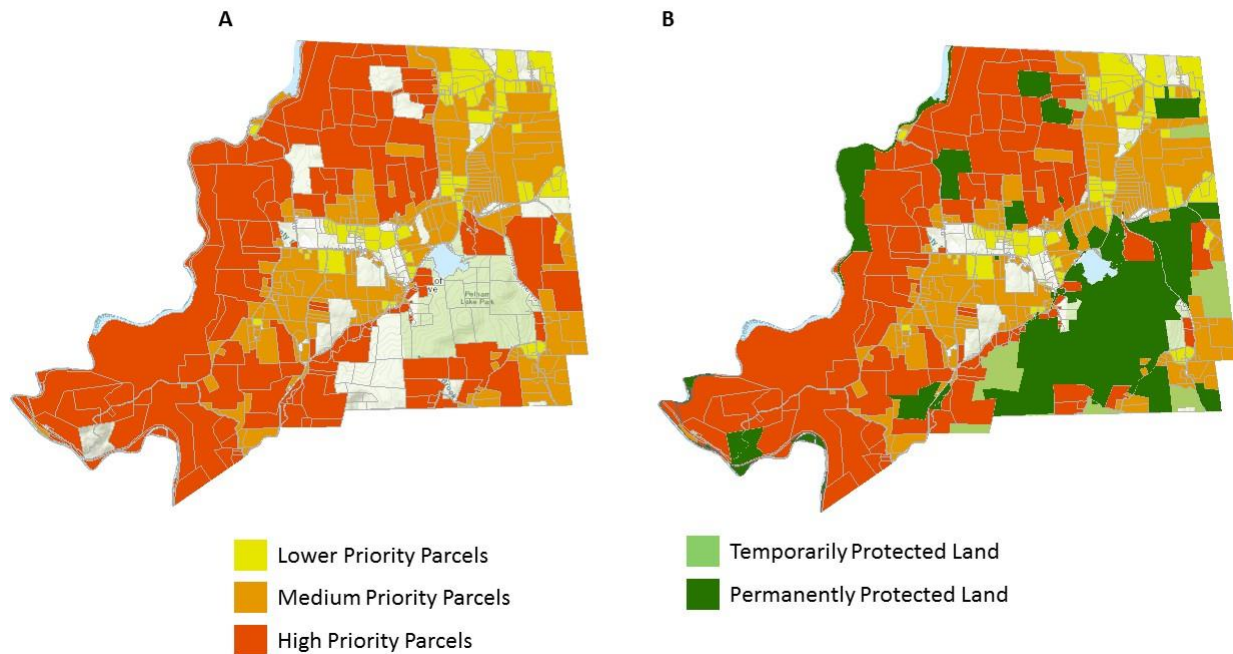


Figure 4-7: A) Parcels of land identified as a priority for protection in Rowe by the MAPPR Balanced Model analysis. **B)** Permanently and temporarily protected parcels in Rowe overlaid on MAPPR Balanced Model data.

Sources: Rowe Assessor 2023, MassGIS, Mass Audubon.

C. GEOLOGY, SOILS, AND TOPOGRAPHY

This subsection reviews the topography, geology, and soils of Rowe, which are essential in determining potential sites for future residential, commercial, and industrial development as well as for new parks, hiking trails, and open space.

C.1 TOPOGRAPHY

Much of Rowe's terrain is hilly and rocky with steep, V-shaped valleys. The town is dissected by Pelham Brook between the hills on its east and west sides. Steele Brook flows through the southwest corner and Davis Brook flows along the east side. The Deerfield River forms the northwest and southwest boundaries.

The present day topography is the legacy of the bedrock's physical properties, such as the resistance to erosion and the distribution of faults and cracks. Two main ridges lie on either side of Pelham Brook. On east side is the Todd Mountain and Adams Mountain range. On the west side, hills rise up from the Deerfield River starting at Negus Mountain in the southwest corner and range all the way to the Vermont border. The elevation ranges from 650 feet at the Deerfield River in the southwest to over 2100 feet at the top of Adams Mountain on the east side.

C.2 GEOLOGY²⁰

The bedrock in Rowe consists mostly of metamorphic rock derived from sedimentary and igneous rock formed during the earlier stages of Rowe's geologic history. Rock types consist primarily of schists, phyllites, quartzite, and gneiss formed during the Hoosac, Goshen, Moretown, and Hawley Formations. Limited stratified drift and alluvium are deposited along the Deerfield River. Metamorphic processes created highly folded bedrock, resulting in the many hills, valleys, bedrock outcrops.

Two major formations characterize Rowe's bedrock today. In the Moretown Formation, sand and mud deposits from an ancient ocean that covered Rowe were metamorphosed from shale and sandstone into the mica, schist, and quartzite that characterize much of Rowe's bedrock. An advancing chain of volcanic rock from the east added ash and lava flows into the closing ocean, causing the Hawley Formation to consist of gneiss, feldspar schist, and amphibolite. In addition, sulfur from the volcanoes combined with iron and copper metals in the rock to form the deposits of mining minerals important to the early economy of Rowe. The Rowe Schist, a strip of metamorphosed mud, volcanic ash and ocean crust rock along the Deerfield River from that early ocean formed the deposits for the numerous talc and soapstone mines in Rowe.

During the Taconic and Acadian orogeneses (mountain building events resulting from collision of land masses), the mountains and valleys were formed by intense upward displacement of the earth's crust.

²⁰ This information was taken from *The History of Rowe, 4th Ed.* (2006) by Percy Whiting Brown and Nancy Newton Williams, quoting Norman L. Hatch, Jr.

Much of the rock was buried during this time. Progressive erosion and wearing down of the land surface produced the topography approximating that of Rowe today. Glacial sculpting during the Pleistocene Era, 1.8 million to 11,000 years ago, bulldozed and scraped loose soil and rock, spreading it over the landscape as the till and hardpan that forms the soil in over 90% of Rowe. Glacial retreat at the end of Pleistocene also deposited sand and gravel.

C.3 SOILS

Soils have five basic characteristics:

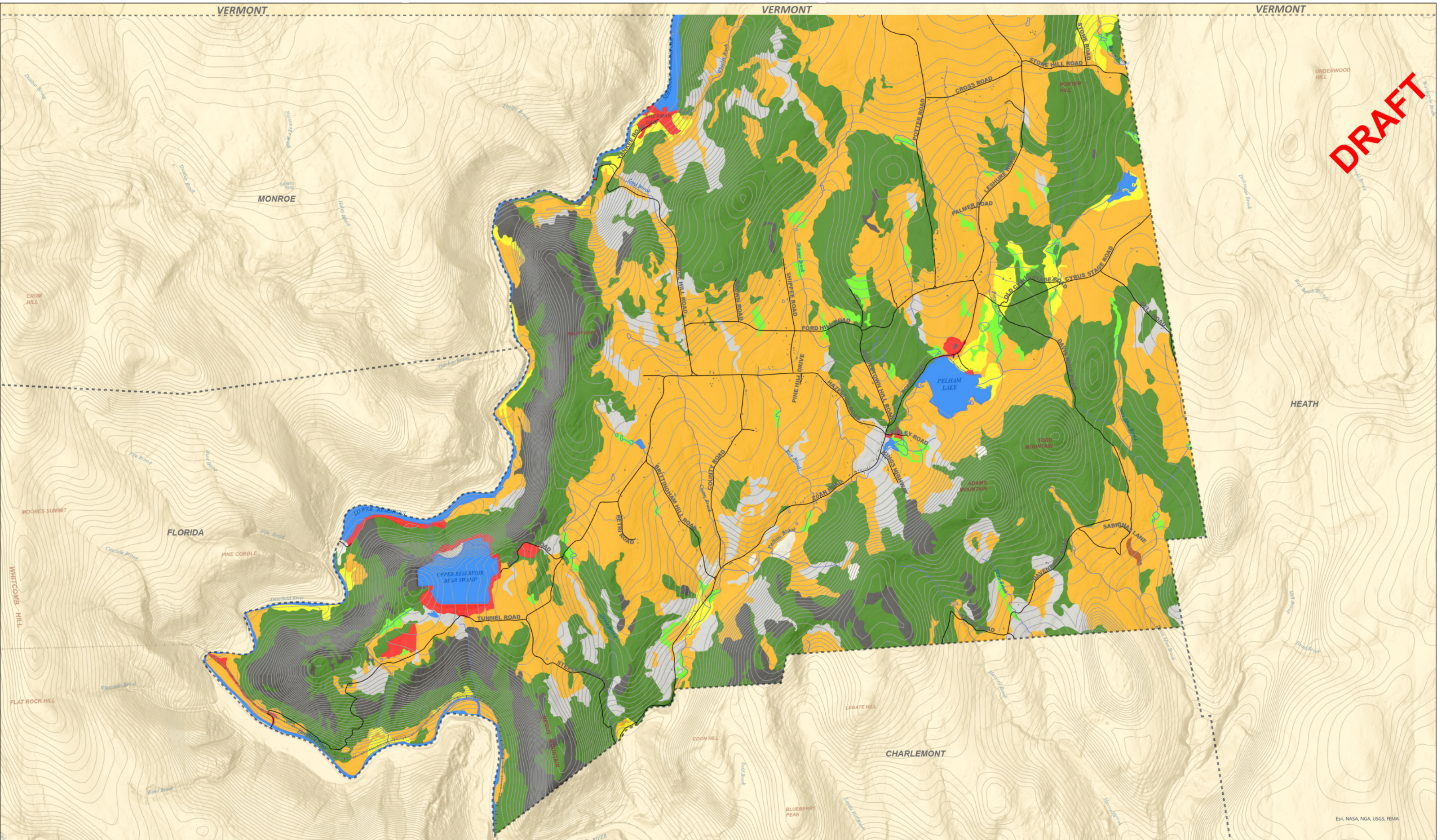
- 1) Slope
- 2) Depth to bedrock
- 3) The speed at which they allow water to percolate into the ground
- 4) The amount of surface water that exists in the area
- 5) The amount of boulders and stones present on the surface that make them appropriate or inappropriate for different land uses

These inherent properties, as well as dynamic properties like compaction or concentration of soil organic matter, create different types of soils that influence their ability to serve certain functions. Their function includes temperature regulation, stormwater infiltration, carbon and nutrient cycling, water cycling and quality, natural "waste" (decomposition) treatment and recycling, and habitat building for most living things and their food.

As Rowe plans for the long-term use of its land, the community should consider at least four soil related questions:

- 1) Which soils constrain development, given current technologies?
- 2) Which soils are particularly suited for recreational opportunities and wildlife habitat?
- 3) Which soils and substrates impact current and future drinking water supplies?
- 4) Which soils are best for agriculture?

Continental glaciers scouring the land over millions of years have left an array of stony, glacial tills, and fine sandy or loamy soils (see *Soils* map on following page). There is relative homogeneity of soil types in the uplands and increasing soil type diversity on the lower slopes of the mountains and in valleys. Shallow, droughty soils are often found on high slopes and mountain tops that have extensive cliff, ledges, and rock outcroppings (in Rowe, typically Millsite-Westminster and Tunbridge-Lyman soils). Other upland soils tend to be complex soils (consisting of two or more soil types), moderately deep to deep, well-draining, and stony or rocky. Deeper, loamy soils are more commonly found in the lowlands or in low points on hills and mountains. Loamy soils include a balance of clay, silt, and sand, such that they hold water at a balanced rate. These soils better support productive plant growth, but can still be very stony. The lowlands and riversides include sandier, outwash soils.



Town of Rowe

Open Space & Recreation Plan 2024

Soils

- Soils***
- Loamy soils
 - Muck/Peat
 - Quarry
 - Rock outcrop
 - Udorthents/urban land
 - Sand/outwash
 - Shallow upland soil complexes
 - Upland soil complexes
 - Water
- Legend:**
- Town Boundary
 - Contour Line (30ft)
 - Rail Line
 - Road
 - Building Structure

***Soil Description**
Rock outcrop: Lyman-Rock outcrop-Tunbridge complex, Westminster and Lyman soils and rock outcrop
Upland soil complexes: Berkshire-Tunbridge, Colrain-Millsite, Marlow-Monadnock, Marlow-Peru
Shallow upland soil complexes: Millsite-Westminster, Tunbridge-Lyman, Chatfield-Hollis
Sand/outwash: Colton-Adams, Windsor and Merrimac
Loamy soils (major types): Pillsbury stony sandy loam; Hinckley sandy loam; and Marlow, Peru, Shelburne, Ashfield fine sandy loams

Scale: 0 0.25 0.5 1 Miles

North Arrow

frcof Franklin Regional Council of Governments

Sources: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.

C.2.1 SOILS CONSTRAINING DEVELOPMENT GIVEN CURRENT TECHNOLOGIES

Many of the major soil types, such as the Millsite-Westminster and Tunbridge-Lyman complex soils, are unsuitable for building due to bedrock within 18 inches of the surface, high water tables year round, and slopes greater than 15%. The steep and shallow bedrock soils are difficult to develop because disturbance can cause severe erosion. These factors also make siting and installing a leach field difficult, and some of these soils are poor filters for leachate and allow contamination of nearby surface groundwater. Well-draining, deeper soils are more suitable for development.

C.2.2 SOILS SUITED FOR RECREATIONAL ACTIVITIES AND/OR WILDLIFE HABITAT AND WOODLANDS

Different recreational uses are constrained by separate soil and topographical characteristics. Sports fields require well-drained and level soils. Lands with slopes over 25% may be attractive to biking and hiking enthusiasts but only if the soils are not easily eroded. Erodible soils include those that are shallow, wet, sandy, or sloped or those with a combination of these characteristics. The hilly terrain of Pelham Lake Park has long been viewed as an area well suited for recreational activities. Pelham Lake Park's 3% to 35% slopes appeal to hikers and bikers, as well as walkers who prefer easy grades. These characteristics are present the length of the Mount Todd-Mount Adams range. By contrast, Negus Mountain is characterized by very steep slopes (over 35%) on three sides, limiting the forms of recreation that are appropriate for that site.

Pelham Lake Park is also well suited to wildlife habitat and forest growth with soils that have good structure and functionality.²¹ Nearly 50% of the park's acreage has soils in the Millsite-Westminster complex with steeper slopes and rocky conditions throughout. In the remaining half of the park's acreage, the glaciers left mostly a complex array stony, glacial tills, and fine sandy loams. The Marlowe, Peru, Shelburne, Ashfield, Berkshire, and Colton soils are deep, rich loams that support productive growth of all trees. The Westminster-Millsite and Tunbridge-Lyman series are shallow, droughty soils found on high slopes and mountain tops, which usually sprout extensive ledges, cliffs, and rock outcroppings. Trees grow slowly on these marginal soils. The Wonsqueak and Peacham organic muck soils anchor the wetlands and swamps throughout the park.

C.2.3 SOILS SUITABLE FOR AGRICULTURE

The Natural Resources Conservation Service (NRCS) classifies soils according to their suitability for agriculture. NRCS designates farmland soils in three classes:

- **Prime farmland:** The best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops. Prime soils produce the highest yields with the fewest inputs, and farming in these areas results in the least damage to the environment.

²¹ Pelham Lake Park Forest Stewardship Climate Plan: https://www.rowe-ma.gov/files/Rowe_Pelham_Lake_Park_FSCP_2022-2032_FINALv2_8-4-22.pdf

- **Unique farmland:** Land other than prime farmland used for the production of high-value food and fiber crops, (with such crops defined by the Secretary of Agriculture).
- **Farmland of statewide or local importance:** Farmland other than prime or unique farmland that is of statewide or local importance for the production of food, feed, fiber, forage, or oilseed crops.

These soil classes should be protected from conversion to non-agricultural uses, as they are a finite resource. If the soil is removed, or the land is developed, the capacity for food and fiber production is permanently lost.

Though the terrain is fairly rugged, there are an estimated **688 acres of prime farmland soil in Rowe**, predominantly in the gentler valley between two mountain ranges (Figure 4-8). These soils are primarily Shelburne fine sandy loam, 3 to 8% slope, with smaller areas of Ashfield fine sandy loam, 1 to 8% slopes. Where the Shelburne fine sandy loam starts, stone piles and stone walls provide evidence of past farming on these soils.

Rowe residents have found that soils that may be prime for agriculture are scattered and too small to support medium- or large-scale agricultural operations. Small subsistence-oriented farms and family gardens are the most prevalent use of these soils along with hay fields, which is sold in some cases. Many of these prime farmland soils are under forest, where they contribute to a productive forest growth. Farmland of statewide importance primarily consists of very stony Marlow fine sandy loams, 0 to 8% slopes, very stony Ashfield fine sandy loam 8 to 15% slopes, and Shelburne fine sandy loam, 8 to 15% slopes, as well as a smaller contribution from other loamy soils. Marlow soils especially also demonstrate significant agricultural past, with stone piles and stone walls dotting the lower slopes where this soil can be found.

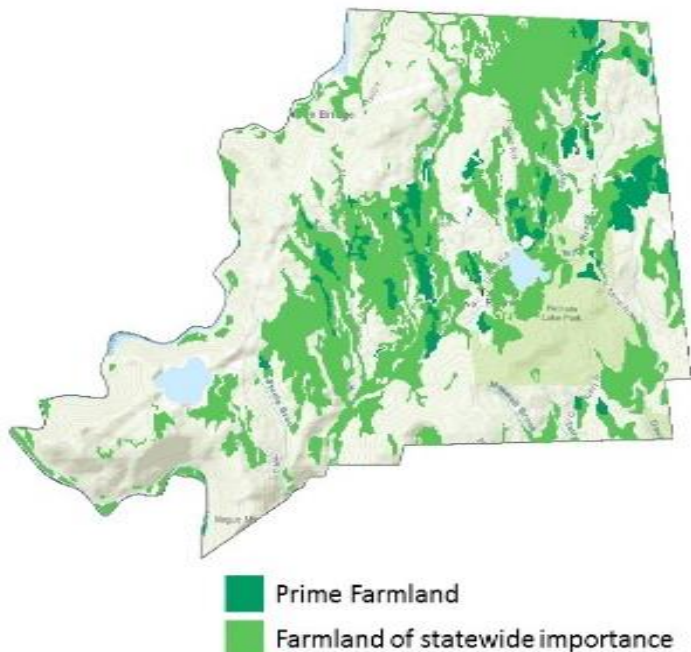


Figure 4-8. Soils Suitable for Agriculture in Rowe

D. LANDSCAPE CHARACTER

Rowe's landscape is predominantly forested hills interspersed, especially in the middle of town, with open fields, meadows, and wetlands. The rugged landscape lends it a striking beauty and provides stunning views. The large contiguous forest, numerous streams, wetlands, and other wildlife habitats create a matrix of habitat and wildlife corridor.

The hills that rise from the Deerfield River are defining features of the landscape and provide important habitat, hydropower, and regionally important recreational value. Pelham Lake and the nearby Mill Pond are Rowe's other most prominent water features, supporting habitat, providing scenic views, and serving as a gathering place for the community.

E. WATER RESOURCES

Rowe is rich in water resources, including brooks, streams, ponds, vernal pools, wetlands, and the Deerfield River (see the *Water Resources* map on the following page). This section focuses on waters within Rowe, but it is important to keep in mind that the water quality of the rivers and streams has impacts beyond the town's borders.

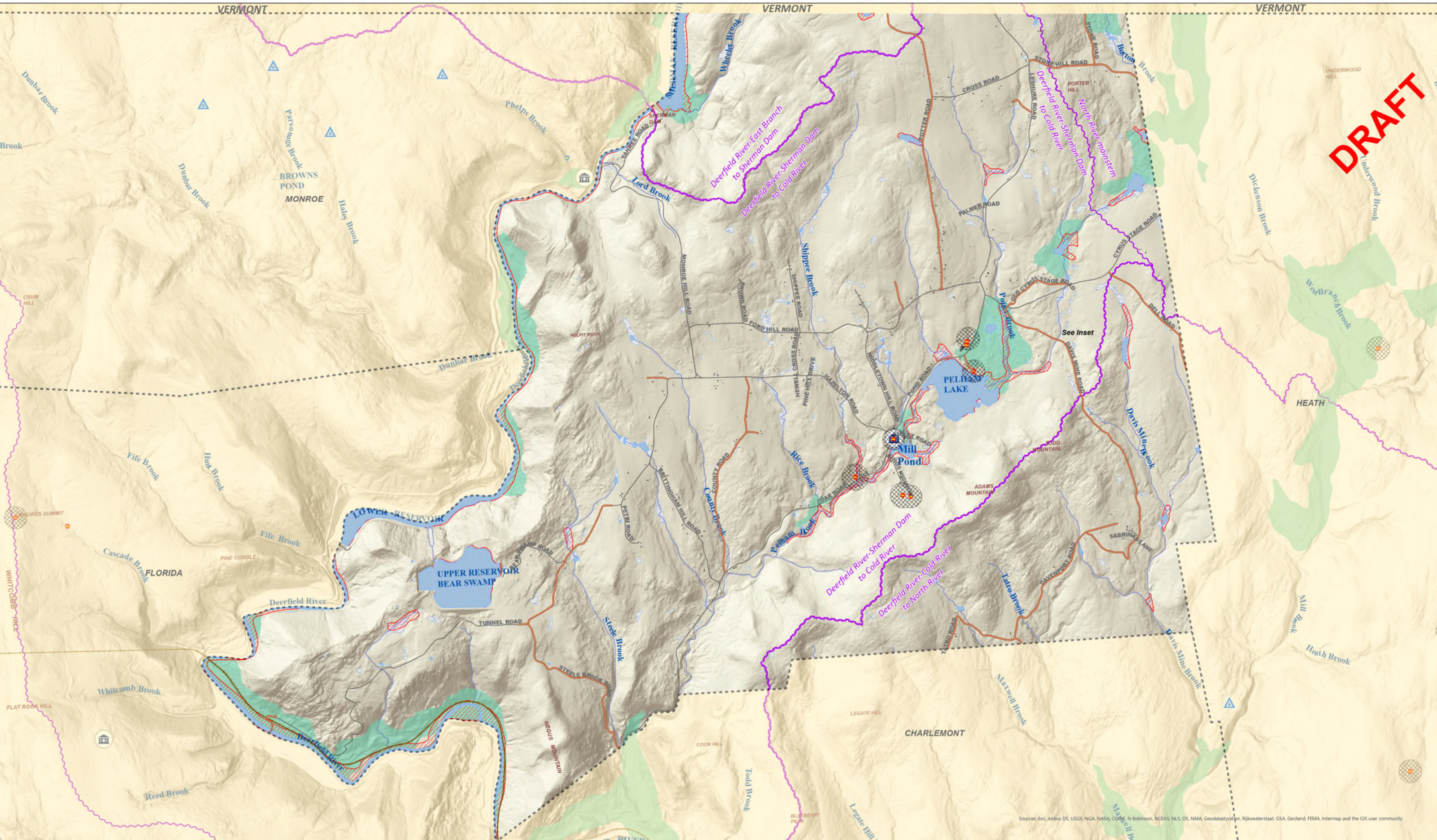
E.1 WATERSHEDS

As described in *Section 3*, all land in Rowe is in the Deerfield River watershed. For streams that do not drain directly into the Deerfield, there are three main sub-watersheds in Rowe associated with Pelham Brook, Davis Mine Brook, and West Branch Brook.

DEERFIELD RIVER WATERSHED

The Deerfield River watershed covers an area of 665 square miles and is home to one of the coldest and cleanest rivers in Massachusetts. It is also "the hardest working river in the country," due to being heavily dammed for hydroelectric power, as discussed in the next subsection, Surface Waters. The river originates in the Green Mountains of southern Vermont, flowing approximately 70 miles and dropping roughly 2,000 feet before draining into the Connecticut River in Greenfield. The river enters Massachusetts between the towns of Monroe and Rowe and flows the length of Rowe's western and southwestern boundary. Upon leaving Rowe, it flows southeastward through the foothills of the Berkshire Plateau in a narrow valley characterized by beautiful scenery, steep slopes, and rural village centers before reaching a wider, more agricultural river valley in the towns of Deerfield and Greenfield, where it eventually meets the Connecticut River.

DRAFT

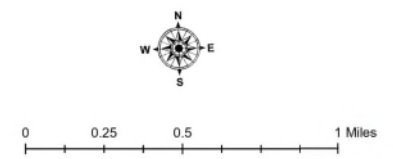


Town of Rowe

Open Space & Recreation Plan 2024

Water Resources

- Public Water Supply
- Wellhead Protection Area
- Waterbody
- Wetland
- Aquifer
- 100 Year Flood Plain
- Sub-Watershed Boundary
- Building Structure
- Town Boundary
- Town Hall
- Gravel/Dirt Road
- Road
- Rail Line
- Stream/River



While there is very little development in the Deerfield River watershed, decades of natural and human-caused disturbances, such as land clearing, channel modification, and damming, have made streams and rivers **highly unstable and prone to frequent flooding and erosion**. Climate change and continued development in the floodplain also contribute to significant stress on the river systems of the watershed.²²

In 2017, FRCOG released *The Deerfield River Watershed-Based Plan*, which outlines evidence-based recommendations to protect watershed health, restore impaired waterbodies, and increase the watershed's resiliency to climate change.²³ This plan focused on ways that towns can become more resilient by working across municipal boundaries to address shared issues and implement mutually beneficial solutions at watershed scale. The plan outlines a wide range of stewardship and management recommendations for public and privately owned forests and agricultural land. Many of these recommendations are relevant to, and support, goals and action items identified in Rowe's 2024 Open Space & Recreation Plan (this document). They include:

- Update and align land use regulations across the 14 watershed towns, with a focus on mapping and managing the river corridor;
- Identify sediment storage, water quality protection, and conservation opportunities in the upland areas of the watersheds; and
- Conduct conservation and restoration projects that protect green infrastructure, improve flood resiliency, and reduce sediment inputs to streams and rivers.

These recommendations are intended to protect and restore watershed health and engage and educate watershed residents.

PELHAM BROOK WATERSHED

Pelham Brook, Potter Brook, and Tuttle Brook drain much of north Rowe into Pelham Lake. Pelham Brook drains Pelham Lake and the town's middle southwest toward Zoar Gap. Tributaries to Pelham Lake include Shippee Brook, Sam Rice Brook, Country Brook, and Steele Brook, among other smaller tributaries.

DAVIS MINE BROOK WATERSHED

Davis Mine Brook and its tributaries Davis Mine Creek, Tatro Brook, and Maxwell Brook drain the southeast corner of Rowe toward Charlemont. Davis Mine Brook is a tributary to Mill Brook, which meets the Deerfield River in Charlemont Center.

²² A Framework for Resilience: Responding to Climate Change in the Deerfield River Watershed. Franklin Regional Council of Governments, January 2019: <https://frcog.org/project/a-framework-for-resilience/>

²³ A Watershed-Based Plan to Maintain the Health and Improve the Resiliency of the Deerfield River Watershed, 15-04/319. Franklin Regional Council of Governments. 2017: <https://frcog.org/publications/deerfield-river-watershed-based-resiliency-plan/>

WEST BRANCH BROOK WATERSHED

The northeast corner of Rowe east of Porter Hill drains toward Heath into Burton Brook and West Branch Brook. West Branch Brook is a tributary to the West Branch of the North River/North River, which meets the Deerfield River on the Charlemont/Shelburne town line.

E.2 SURFACE WATERS

MassGIS's 2016 land cover data identified 407 acres of surface waters covering 3% of the surface area of Rowe. The hydrology of Rowe is complex and includes many flashy mountain streams draining off the steeper topography that generally have high stream power and small, narrow sub-watersheds. The lowlands are characterized by more established brooks and wetlands marshy areas, and a lake. Vernal pools can be found at all elevations.

Massachusetts is required by the U.S. Environmental Protection Agency (EPA) to identify waterbodies that are not expected to meet surface water quality standards of their assigned class.²⁴ These waterbodies are identified every two years in the Integrated List of Waters (ILW). The Massachusetts Surface Water Quality Standards (SWQS) assign all inland and coastal and marine waters to classes according to the intended beneficial uses of those waters. A number of waters in Rowe are impaired.

²⁴ Water classes for the Massachusetts Surface Water Quality Standards:

Class A = Designated as the source of public water supplies and, where compatible with this use, should also be suitable for supporting aquatic life, recreational uses such as swimming and boating, and fish consumption.

Class B = Not water supplies, but designated for all of the other uses cited above for Class A.

Class C = Suitable for aquatic life and recreational uses where contact with the water is incidental, such as boating and fishing, but may not be suitable for swimming, diving, or water skiing. Not all waterbodies in Rowe have been assessed by the DEP for water quality impairments.

<https://www.mass.gov/regulations/314-CMR-4-the-massachusetts-surface-water-quality-standards>

Nearly all of Rowe's streams, along with the Deerfield River, are classified as coldwater fish resources (CFRs) by the Massachusetts Division of Fisheries and Wildlife (MassWildlife). Tatro Brook is the only stream not listed as a CFR (Figure 4-9). According to MassWildlife, CFRs are particularly sensitive habitats. Changes in land and water use can reduce the ability of these waters to support trout and 11 other fish species. Identification of CFRs are based on fish samples collected annually by staff biologists and technicians. MassWildlife updates the list of CFRs in the state on an annual basis and maintains an interactive map online.

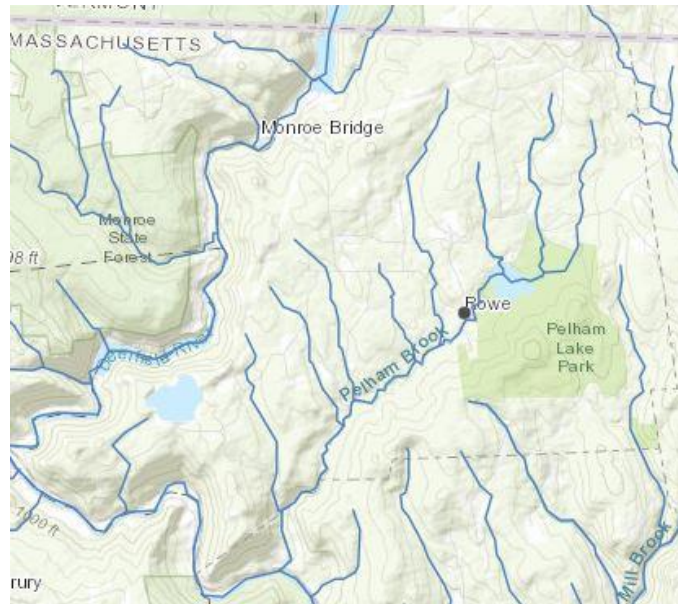


Figure 4-9: Coldwater fishery resources (CFRs) in Rowe

Conservation commissions, planning boards, land trusts, regional planning agencies, and open space committees can refer to the list and map of CFRs to better inform conservation planning.²⁵

The following inventory describes Rowe's most prominent surface waters and focuses on the impact of utility infrastructure, water quality issues, and the public access and recreational value of those waters.

DEERFIELD RIVER

Along Rowe's border, the Deerfield is impounded by three hydroelectric dams (see points E, F, and G in Figure 4-10). The Monroe Bridge has created the 72-acre Sherman Reservoir on the Deerfield River (classified by MassDEP as a lake).

The Bear Swamp complex, owned by Brookfield Renewables, U.S., is composed of the Bear Swamp Upper Reservoir, the underground pumped storage generating station, the generating station at the Fife Brook Dam, and the generating station at the Deerfield Number Five Dam. The Fife Brook Dam rises 130 feet across a 900-foot span, creating the Bear Swamp Lower Reservoir on the river (considered by MassDEP to be part of the Deerfield River rather than a separate waterbody). During peak demand periods, the pumped storage generating station releases water from the upper reservoir through a series of tunnels and vanes, through power-generating turbines, to the lower reservoir. The Number Five Dam generating station is fed by a canal system from upriver.

²⁵ Cold Water Fisheries: <https://www.mass.gov/info-details/coldwater-fish-resources>



Figure 4-10. Dams in the Deerfield River Watershed

Source: Deerfield River Watershed Association

According to the 2022 ILW, the Deerfield River is listed as a Class B waterway and is impaired by flow regime modification from the outlet of the Sherman Reservoir to its confluence with the Cold River in Charlemont. This impairment is the result of the dam systems interrupting the natural flow of the river and introducing dramatic daily swings between high flow and low flow following scheduled and unscheduled dam releases.

The Bear Swamp complex has been found to be detrimental to wild fish and other aquatic species in what would otherwise be outstanding aquatic habitat. According to MassWildlife, “its large headwater storage reservoirs, long bypass reaches, and daily peaking operations has dramatically changed the nature of the Deerfield River [...]”²⁶ Studies conducted as part of the Bear Swamp/Fife Brook FERC relicensing have demonstrated significant impact to trout spawning habitat as a result of hydro peaking activities. In fall 2017, the Deerfield River Watershed Chapter of Trout Unlimited performed a trout spawning study along the Deerfield River and its tributaries, and found evidence of brown trout

²⁶ <https://lowimpacthydro.org/wp-content/uploads/2021/03/Massachusetts-DFG-Deerfield-River-Recertification-Comments-1.pdf>

spawning activity from Zoar Gap upriver to the Fife Brook Dam, with the highest density of redds (nests) in the uppermost reach closest to Fife Brook. The study found that dewatering frequently occurred in redds when the river flows returned to minimum after the daily peaks, increasing the risk of mortality. The study results clearly show that **hydropeaking impacts trout spawning success and natural reproduction** in this important resource area.

Fortunately, the Deerfield River in Rowe is still found to support recreational and aesthetic uses and has **tremendous recreation potential**. MassWildlife stocks the Deerfield River with a large number of catchable-size rainbow and/or brown trout every spring and fall. Angling for trout, and other species is a popular pastime for many locals and tourists, who enjoy the natural beauty of the river and surrounding landscape. The viable habitat, abundant and varied food, and usually ideal water temperatures allow for stocked trout to holdover from year-to-year and provide real potential for catching trophy size fish, in particular brown trout. There is evidence of natural reproduction of both brown trout and rainbow trout in the mainstem (see *Fisheries and Wildlife* in this section).

There are two Catch-and-Release Areas on the Deerfield River managed by MassWildlife.²⁷ The upper section extends from below the Fife Brook Dam for 1.5 miles downstream to the Hoosac Tunnel railroad bridge. The lower section begins at the mouth of Pelham Brook and continues 1 mile downstream to the Mohawk campground. Both sections of the Catch-and-Release Area flow through a largely undeveloped landscape of steep, forested hills. The river mostly consists of large rocks and boulders and contains a series of deep swift runs, extensive riffles, and several large, very deep pools. The upper section of the Catch and Release area can support coldwater fish year round thanks to the coldwater release from the Fife Brook Dam. The lower section is further from the dam and is more susceptible to summer heat and drought, which can cause coldwater fish to move out of the main stem and into tributaries that maintain coldwater refugia.

The river is also hugely popular for kayakers, rafters, and tubers. Two whitewater rafting companies time trips with scheduled releases from both Monroe Bridge Dam and Fife Dam. The section of river called the Dryway, from the Monroe Bridge Dam to Fife Brook, is considered some of the best Class 3 – 4 whitewater rapids in New England.²⁸ The class 3+ rapids at Zoar Gap are the most prominent feature in the section below the Fife Brook Dam. Tubing and paddling are also a popular activity on the Deerfield, particularly from the Zoar Picnic Area in Rowe to the Shunpike Rest Area in Charlemont. Tubing with a commercial tubing outfitter in this area is recommended due to the amount of obstacles in the fast-moving section.

The public can access the river via several unmarked pull-offs where parking is available starting below Fife Brook Dam. Rafts and other small watercraft can be launched at the Fife Brook Dam access. The

²⁷ <https://www.mass.gov/doc/deerfield-river-catch-and-release-upper-section/download>
<https://www.mass.gov/doc/deerfield-river-catch-and-release-upper-section/download>

²⁸ <https://deerfieldriver.org/boating>

lower section can be accessed from Mohawk State Forest off of Route 2, but involves a substantial walk to the river. There is another access point from a small pull-off on Zoar Road near the mouth of Pelham Brook.

SHERMAN RESERVOIR

The Sherman Reservoir is a Class B waterbody and is listed as impaired by mercury and not supporting fish consumption in the 2022 ILW. Other uses have not been assessed. There is no public access to the Reservoir in Rowe, but there is a boat launch and picnic area on the northwest side in Readsboro, Vermont.

UPPER RESERVOIR BEAR SWAMP

The 118-acre Bear Swamp Upper Reservoir is a pump storage reservoir that is typically filled during night and drained when electricity generation is needed during peak demand periods. The reservoir is undeveloped and considered a high quality waterbody, however aquatic habitat quality can be impaired by fluctuating water levels. There is no public access to the Bear Swamp Upper Reservoir, though people can walk around it.

PELHAM BROOK

Pelham Brook is a tributary to Pelham Lake as well as the brook that flows out of the lake. It is considered to have high water quality. It is generally too small of a stream to be popular for recreation, but there are some local swim spots along the brook.

PELHAM LAKE

The 80-acre Pelham Lake is a Class B waterbody and is listed as impaired by mercury and not supporting fish consumption in the 2022 ILW. Other uses have not been assessed. The Town posts the lake as catch-and-release fishing.

Pelham Lake is heavily used for recreational boating, fishing, and swimming. Boating access is found at the Pelham Lake Park Beach and Percy Point. Fishing is popular year-round. Swimming is encouraged and lifeguarded from the Pelham Lake Park beach.

DAVIS MINE BROOK

The Davis Pyrite Mine, located in the southeastern part of the town, operated from 1882 to 1911. It was considered one of the most successful mines in Massachusetts at the time, due to the relatively low amount of arsenic found in its pyrite, which was used in the production of sulfuric acid. The water in Davis Mine Brook, and its small tributary Effluent Stream (or Mine Effluent Creek), continues to be affected by the highly acidic runoff from the mine's operation over 100 years ago, as illustrated by the low pH measures of shallow groundwater, seen in Figure 4-11. There are no life forms or vegetation throughout Effluent Creek. The pH increases slightly after the confluence of Davis Mine Brook, and slowly increases further downstream. Much of the brook runs through private property and impaired water quality make it unsuitable for contact recreation.

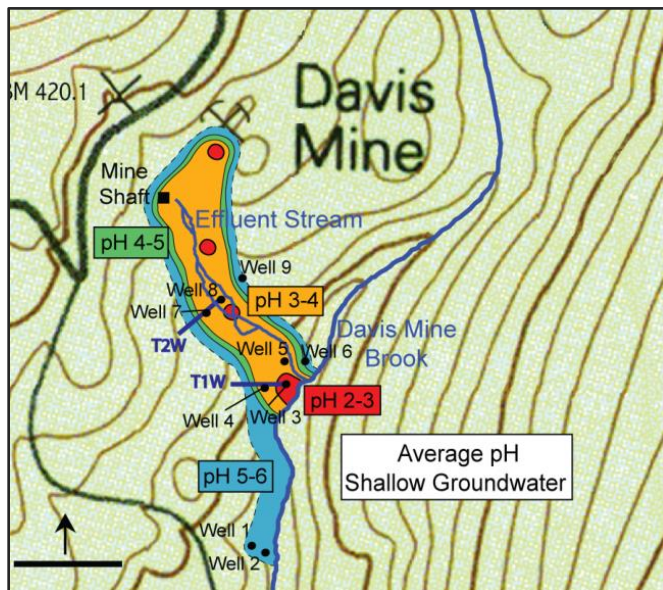


Figure 4-11. Transects in Relation to Expected Shallow Groundwater pH at Davis Mine

Source: Miller 2011 (<https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1779&context=theses>)

E.3 AQUIFER RECHARGE AREAS

Protecting drinking water supplies and reducing water usage is the third highest priority natural resource goal in the *Franklin County 2035 Regional Plan for Sustainable Development (RPSD)*. The water that Rowe residents drink comes exclusively from private and community wells and a spring near the church that relies on groundwater. These rely on water that has collected in underground layers of sand and gravel or bedrock fractures called aquifers. When it rains, water infiltrates the soil, slowly migrating down into these aquifers. For sand and gravel aquifers, levels are maintained by areas called aquifer recharge areas—places where water is able to infiltrate all the way to and refill an aquifer because no confining layer is present.

Private drinking water wells in sand, gravel, till, and other loose materials found along lakes, ponds, rivers, and in valley floodplains can be vulnerable to contamination from adjacent land uses and to climate stressors like drought. Bedrock wells are typically less vulnerable but a prolonged drought could affect low yield bedrock wells, too.

Rowe's aquifers have not been mapped. According to the Source Water Assessment Program report created for the Rowe Elementary School, wells drilled in the grey to green medium-grained schist of the Moretown Formation are considered **highly vulnerable to potential contamination** from the ground surface because there is no significant hydrogeologic barrier, such as clay, to prevent surface contamination from migrating into the bedrock aquifer (see for more details, see *Environmental Challenges* in this section). **Protecting groundwater and aquifers from contamination by hazardous materials, sewage, salts, pesticides, etc., is critical to the quality of drinking water sources.**

Massachusetts Title 5 law regulates proper siting, construction, and maintenance of on-site wastewater disposal systems (septic) to prevent septic contamination of wells and other water resources. When applied to a parcel with shallow soils or varied topography, these minimum requirements can constrain the location and number of new house sites that can be constructed, although constraints are fewer now that mounded leach fields are permitted. Even when siting requirements are met, thin soils can be a poor filtering buffer for surface runoff or infiltration, potentially bringing contaminants (i.e., road salts, fertilizers, pesticides, hazardous wastes, septic system effluent, etc.) into contact with surface water or groundwater. Barring public wastewater treatment, the most prudent approaches to guaranteeing safe groundwater for drinking are to **make sure that septic systems are designed properly** (in accordance with the Title 5 Regulations), to replace failing systems, and to monitor development closely in areas around water resources.

E.4 FLOOD HAZARD AREAS

Water levels in Rowe's rivers, streams, and wetlands rise and fall seasonally and during high rainfall events. High water levels are typical in spring due to snowmelt and ground thaw. This is the period when flood hazards are normally expected. Low water levels occur in summer due to high evaporation and plant uptake (transpiration). However, at any time heavy rainfall may create conditions that raise water levels in rivers and streams above bank-full stage causing them to overflow adjacent lands.

Flood hazard areas include the watercourses (rivers and streams) and adjacent relatively low-lying areas subject to periodic flooding (the 100-year flood zone and 500-year flood zone).²⁹ However, due to changing precipitation patterns due to climate change, the chances of Rowe experiencing a 100-year or 500-year flood is higher than previously predicted.

According to the FEMA Flood Hazard Boundary Maps for the Town of Rowe, dated August 20, 1976, Special Flood Hazard Areas are located along Deerfield River, Potter Brook, Pelham Brook, Pelham Lake, Mill Pond, and several wetland areas and other streams.³⁰ The floodplain covers approximately 636 acres, or 4% of town. According to 2005 MassGIS land use data, there are nine dwellings located on 4.4 acres in the floodplain. **Multiple municipal buildings are located around waterbodies, which makes them vulnerable to flooding.** According to the 2021 Rowe MVP Plan, the Town Hall is most vulnerable as it is right next to the Mill Pond. The DPW building, Fire Station, Broadband Hut, and the Kemp McCarthy Memorial Museum are also vulnerable due to their proximity to the pond and the wetland

²⁹ The 100-year floodplain has a 1% chance of being flooded in a single year, while areas in the 500-year floodplain have a 0.2% chance of being flooded in any given year.

³⁰ In November 2018, FEMA began a 5-7 year project called "Risk MAP" to digitally modernize the floodplain maps in Franklin County, including for the Town of Rowe, using LIDAR data and a watershed-oriented approach.

that feeds it. The Rowe Elementary School and Public Library are uphill and less vulnerable.³¹ The plan also noted that the Town landfill is right on the edge of Pelham Brook and is not formally capped (i.e. its cap has not been approved by the state), posing a potential contamination risk in the future with stronger storms. The Town of Rowe does not have a Floodplain Overlay district that restricts development within FEMA-mapped floodplains and does not participate in the National Flood Insurance Program.

Major and ongoing flooding events, especially in the past decade, have caused **severe erosion on waterways through town**. Concern about proper road drainage has increased with the impacts of more frequent and intense precipitation events. In Rowe, Tropical Storm Irene caused over \$160,000 of damages, primarily from clogged culverts, and flooding and erosion of the roads and the road shoulder. The Highway Department regularly clears out culverts and drainage ditches throughout Town to ensure proper drainage, but flash flooding, washouts, and mudding occur regularly. According to the 2021 Rowe MVP Plan, key troublesome locations currently include Davenport Road, Davis Mine Road, and Potter Road.

E.5 RIVER CORRIDOR MAPPING AND MANAGEMENT

Rivers and streams are dynamic systems in a constant state of change. Fluvial erosion is the process of wearing away of soil, vegetation, sediment, and rock through the movement of water in rivers and streams. While erosion is a natural process, the rate of erosion in many streams and rivers has been made worse by land use change, especially loss of riparian buffer, and human alteration of the stream channel, as well as changing climate. Sometimes buildings and roads are located too close to riverbanks and areas of active river processes, placing them at risk to erosive forces while at the same time increasing the rate of erosion within the river corridor due to loss of flood storage in the floodplain.

In 2019, FRCOG released *The River Corridor Management Toolkit*, which developed and piloted innovative practices for delineating river corridors using a scientifically defensible mapping protocol. The toolkit outlines two management tools to accompany the mapping: 1) a River Corridor Protection Overlay Zoning District Bylaw and 2) a River Corridor Easement Restriction. The goal of the toolkit is to equip communities and landowners interested in river restoration and protection, climate resilient land use, and the reduction of harm to land, water, habitat, people, and infrastructure caused by increasingly severe and frequent flood events.³²

In Franklin County, the Green River, North River, Sawmill River, Fall River, and South River have mapped river corridors. **Rowe could seek to apply the river corridor mapping protocol to the Pelham Brook.**

³¹ During the 2021 MVP planning process, the community also identified Tunnel Road around the Bear Swamp Upper Reservoir as an area subject to frequent flooding. This is an old dirt road only partially maintained by the Town.

³² <https://frcog.org/publications/river-corridor-toolkit/>

Newly mapped river corridor areas in the Town would guide planning efforts involving flood resilience and land conservation.

E.6 WETLANDS

Many of Rowe's streams feature wetlands at their headwaters or along their reach. According to the 2016 MassGIS land use data, 250 acres, or 2% of total acreage in Rowe, are classified as wetlands (see the *Water Resources Map*). Wetlands are transitional areas where land-based and water-based ecosystems overlap. Inland wetlands are commonly referred to as swamps, marshes, and bogs. Technically, wetlands are places where the water table is at or near the surface or the land is covered by shallow water. Sometimes, the term wetland is used to refer to surface water as well. Wetlands represent unique and special habitats that help to maintain biological diversity and support approximately 43% of the nation's threatened and endangered species.³³ Inland wetlands provide flood storage and control, pollution filtration, and habitat for fish and wildlife. **Since wetlands are commonly recharge zones for groundwater sources, it is important that Rowe identify and protect its wetlands.** Local Conservation Commissions are responsible for administering the Wetlands Protection Act (WPA).³⁴

The protection of all Rowe's wetlands should be considered a high priority. The WPA requires a permit for any alteration of wetland areas or for any landscape disturbance within 100 feet of wetlands bordering a river or stream, or within 100 feet of isolated wetlands larger than one quarter of an acre. Permits are also required for landscape alterations within 200 feet of rivers and perennial streams. The conversion of wetlands is a serious problem with high-priced consequences. Watersheds with degraded or destroyed wetlands experience substantially higher flood peaks. Moreover, wetlands replicated with engineered solutions do not function nearly as well ecologically as undisturbed natural wetland systems.

F. VEGETATION

³³ Kinne 1999

³⁴ In recognition of the ecological and economic importance of wetlands, the Massachusetts Wetlands Protection Act (WPA) is designed to protect eight "interests" related to their function:

1. Public and private water supply
2. Ground water
3. Flood control
4. Prevention of storm damage
5. Prevention of pollution
6. Protection of land containing shellfish
7. Protection of wildlife habitat
8. Protection of fisheries

To this end, the law defines and protects "wetland resource areas," including banks of rivers, lakes, ponds and streams, wetlands bordering the banks, land under rivers, lakes and ponds, land subject to flooding, and "riverfront areas" within two hundred feet of any stream that runs all year.

F.1 GENERAL INVENTORY

The soils and water in Rowe create ecosystems that support a broad range of vegetation. Vegetation is also a critical component of these ecosystems, converting solar energy into food, which supports all life. Plants cycle energy through the ecosystem by decaying, by removing carbon from the atmosphere, and by shedding oxygen. Plants help moderate temperatures and act as shelter and refuge for wildlife. Plants also have significant economic and cultural value to people, including Indigenous communities who have been using native plants for thousands of years.

Plants and animals together make up natural communities, defined as interacting groups of plants and animals that share a common environment and occur together in different places on the landscape. Over the past decade, ecologists and conservationists in Massachusetts have devoted increasing effort to studying and protecting these natural communities, rather than focusing on individual species. This section and the following section will address both natural communities and their component species.

F.2 FOREST

Approximately 86% of Rowe is forested, much of it is large blocks of interior forest habitat.³⁵ The second highest natural resource goal in the *Franklin County 2035 Regional Plan for Sustainable Development* is to protect forests. **Unfragmented forests, old-growth forests, and forests that represent whole, intact ecosystems are especially ecologically valuable**, particularly in the face of accelerating climate change impacts. **Forests along rivers and streams are also a priority** to protect for their important habitat, water recharge functions, and flood resiliency benefits.

As was standard across all of the Northeast, much of Rowe's currently forested landscape has a long history of human alteration. Much of Rowe was cleared beginning in the 1760s for sheep pasture and other agricultural activities, as evidenced by stone walls throughout the town's forests. Rowe's historical mining activity, in addition to the physical alteration from the mine itself, required massive quantities of fuelwood whose harvest furthered forest clearing in and around what is now Pelham Lake Park. The forest ecosystem likely began regenerating in the agricultural areas in the 1840s, when the sheep economy collapsed, and around the Davis Mine in 1911 when the mine was closed. As a result of all of these changes, while most of Rowe is dominated by forest today, virtually none of this forest is representative of the original conditions that existed prior to European settlement.

Rowe is located in the transition zone of southern and northern forests. The area supports a mostly northern hardwood and oak forest that features a strong hemlock component with occasional pine and red spruce. In the understory, it is common to find mountain laurel and northern hardwood species such as beech, hobblebush, and striped maple. There are narrow bands of floodplain forest along the Deerfield River in Rowe.

³⁵ 2016 MassGIS Land Use Land Cover Data

Common shrub and herbaceous species that are important food sources for local wildlife are flowering dogwood, choke cherry, high bush and low bush blueberry, mountain laurel, witch hazel, aster, dandelions, goldenrod, sweet fern, cattail, and water lilies.

In 2020, the Rowe community developed a forest stewardship plan for Pelham Lake Park, piloting a new paradigm for community-based forest stewardship in Massachusetts. Community-driven outreach, education, and listening sessions engaged the Rowe community in the process of developing goals for the Park's forest. The community stated the following goals for the forest stewardship on Pelham Lake Park forests:

- **Sustain biological richness** defined as all forms of life within the forest and their ecological roles and the different ecosystems, landscapes where they function, species, and genetic codes present here now.
- **Sustain the ecological services and benefits provided to humans** from these forests (defined as social and emotional goods, hydrologic cycle function, soil quality and function, climate regulation, economic goods, and cultural values).
- **Sustain forest resilience.** Be proactive where possible to enhance resilience of this forest by using climate science to plan for future disturbance and the forests' responses.
- **Promote the health and productive capacity of the forest trees** and regenerate these forests to perpetuate their ecological benefits and function.
- **Protect and enhance the trail system** throughout the Park.

Marketable timber goods and carbon markets were low priority to the community, so do not show up as goals.

In 2022, the community worked with foresters to update the 2020 stewardship plan to be a climate-smart plan. The plan proposes a set of sustainable forestry practices that are realistic given the Town's finite human resources, time, and financial resources. The updated sustainable forestry practices were chosen for their ecological outcomes, such as improving forest ecosystem function, increasing forest resilience, and supporting or enhancing goods and services provided to the community.

E.2.1 INTERIOR FOREST BLOCKS AND FOREST CORES

Rowe is home to many extensively forested areas where forest cover is relatively unfragmented by human development. These areas contain interior forest, or forest cores—areas of forest hundreds or thousands of acres in size buffered from disturbance. Interior forests greatly increase the ability of ecosystems to recover from changes and disturbances and allow species richness to be maintained by providing connected habitats and protecting vulnerable species from edge effects.

The state has designated BioMap Forest Core along the Todd Mountain-Adams Mountain range down into Charlemont and along the Heath border and Davis Mine Brook into Charlemont. The Massachusetts

Division of Fisheries and Wildlife (DFW) has designated Tuttle Brook north of Cyrus State Road and many parts of western Rowe as interior forest.

E.2.2 CLIMATE CHANGE AND FOREST RESILIENCE³⁶

As humans understand more about the importance of our forests to our health and our ability to mitigate the ongoing climate crisis, forest resilience becomes critical for forest ecosystems. Forest resilience means the capacity of a forest to respond to disturbances (natural and man-made) by resisting long-term damage or stress and recovering quickly to full functionality and the provision of the goods and benefits that all life needs. The main stressors forests face today are forest conversion, invasive plants, invasive insects and disease, over-browsing from deer, and climate change.³⁷ These stressors interact with one another to increase their negative impacts, making it all the more important to address them as part of the larger whole of forest resilience.

Climate change is impacting forests in many ways. A longer growing season and increasing temperatures are shifting habitat conditions for trees northward and to higher elevations. Over time, the birch-beech-maple forests typical of New England will decline while oak-hickory forests more typical in areas south of New England will thrive. An expected increase in periods of drought between intense precipitation events may weaken some trees, leaving them more susceptible to insects and diseases, while it may improve conditions for other trees.

Resilience hinges on trees and how they are arrayed across the forest—in age classes, by species, and in terms of how they are mixed together. In Pelham Lake Park, specifically, the forests represent the common red oak-sugar maple–mixed hardwood transition forest mixed with the hemlock-northern hardwood forest and a small component of the true hemlock forest. On the slopes of Adams and Todd Mountains, some majestic, monster yellow birch, white ash, and red oak areas are developing old growth features like large size, old-growth bark, and cavities. The combination of various distinct natural communities in the Park adds a diversity to the species composition, resiliency, and adaptability in the face of a changing climate. However, aside from some young forest in areas of old forest management and pockets of white pine, birch, and beech regeneration that are perhaps a bit younger, overall the forest at Pelham Lake Park is of a homogenous age class.

Forest resilience has historically been high on Pelham Lake Park property as evidenced by the relatively quick reversion to forest after agricultural and mining abandonment. However, **structural vulnerabilities and new threats are compromising the long-term resilience** of the Park's forest system, and to the extent that the forest at Pelham Lake Park mirrors other forests in Rowe, those forests as well. Invasive plant species, which grow vigorously with the lengthening growing seasons and spread fast, are

³⁶ This section is adapted from the Town of Rowe's *Pelham Lake park Forest Stewardship Climate Plan 2022-2023*: https://rowe-ma.gov/files/Rowe_Pelham_Lake_Park_FSCP_2022-2032_FINALv2_8-4-22.pdf

³⁷ *Increasing Forest Resiliency for an Uncertain Future*. Catanzaro, Paul, Anthony D'Amato, and Emily Silver Huff. 2016. <https://masswoods.org/sites/masswoods.net/files/Forest-Resiliency.pdf>

threatening native plant diversity. Invasive insects are impacting beech, ash, and especially hemlock, which is currently the most common tree in the Park. And a **general lack of diversity in forest structure**, due to the lack of diverse age classes, present threats to forest resilience. Extreme weather conditions, when they occur, threaten forest structure, tree vigor, and tree crown health in Pelham Lake Park as well.

Climate change impacts for Pelham Lake Park will likely revolve around the following broad themes with myriad possible permutations based on current forest conditions and the decisions that the Town makes in response to them:

- **Extreme and more frequent precipitation events:** Immediately, these will primarily challenge the trail network on the Park as well as legacy roads and disturbed areas where soil erosion is more possible. Longer term, increased moisture will likely shift species composition as well.
- **Changing soil moisture:** While increased precipitation may help vegetation in the Park, the predicted irregularity of the precipitation will likely result in more dramatic swings in soil moisture patterns. Late summer droughts would hinder seedling germination success while quicker seasonal transitions such as early and rapid snow melt, would stress vegetation at some of its more vulnerable times.
- **Forest insect pests:** Overall, insects often form part of a tree's stress environment and with climate change, it is expected that these stresses will become more pronounced and potentially more lethal as insects attack trees already stressed by drought, saturated soils, or fungal diseases.
- **Changing habitat for plant species:** Climate change will bring changing habitat for trees. Since there are a wide array of tree species on Pelham Lake, these effects will likely result in range and distribution shifts between species as opposed to the wholesale loss of forest. Having a diverse forest adds to forest resilience as some species will thrive while others will decline. Invasive plants are also a concern here. Luckily, the Park has few at this time, but those that are here will thrive under longer growing seasons unless they are controlled.
- **Wildlife habitat:** Wildlife relies on forests, so a changing forest will mean stress on current wildlife populations and potential opportunities for new species. Deer populations will likely fare well under warmer winter conditions. This will in turn result in higher herbivory pressure, particularly in the Covenant areas where hunting is prohibited.
- **System diversity and resilience:** In general, Pelham Lake Park is a diverse forest system and should fare well under the increased unpredictability of climate change. However, some monodominant stands, like hemlock ones, are quite vulnerable and will likely transition to a more hardwood dominated condition over the next 20 to 50 years.

While the species composition at Pelham Lake Park is generally skewed toward species that are projected to be capable of persisting, adapting, and even thriving under projected climate change impacts for the region, hemlock is the notable exception. With hemlock wooly adelgid and elongate hemlock scale present on the property, **hemlock will likely fare poorly in the coming years.** For

example, along stream corridors, hemlock provides temperature regulation, which in turn impacts Pelham Lake and fish habitat. Planning for this demise will be an ongoing discussion for the community. The updated 2022 – 2032 *Pelham Lake Park Forest Stewardship Climate Plan* includes a significantly expanded focus on climate change mitigation and adaptation and includes stewardship recommendations that address each of these concerns. However, what to do about hemlock decline in the Park is an open question.

E.2.2 FORESTS AND CARBON³⁸

Forests are the optimal carbon sinks. Carbon is sequestered (captured and converted) and stored in tree roots, stems, branches and leaves, and in forest soils. Trees continue to sequester carbon for as long as they live and store more carbon the older they get. In Massachusetts, it is estimated that forests sequester 14% of the state's gross annual carbon emissions.³⁹ Even though scientific research is happening at a rapid pace, there is still no consensus for how to manage forests for their use as optimal carbon sinks. Some of the science known at this time is:

- Mature forests hold more overall carbon.
- Young forests accumulate carbon at a faster rate.
- Stable, well-structured soils hold a high percentage (~50%) of the carbon that is in the forest carbon pool.
- Letting forests grow maximizes carbon storage as the forest grows older, but it opens a vulnerability to dramatic and rapid loss of carbon in the event that a major natural catastrophe occurs and trees die.
- A balance of different aged trees, growing at different rates, is good for a carbon sink's functionality.
- Long-term wood building products store carbon, making them a good low-carbon substitute for steel, plastics, or concrete.

There is much we do not know, and keeping a resilient portfolio of trees of many species and sizes likely remains a very solid strategy.

According to the 2022 – 2023 Pelham Lake Park Stewardship Climate Plan, the Park is acting as a good carbon sink right now, but this condition could be enhanced. Close monitoring and a thoughtful diversification of age classes over time will enhance this value. The Town's commitment to extended periods between intentional forest disturbances and to the minimization of economics as a decision criterion for forest stewardship guarantee high functionality for both carbon accumulation and storage.

³⁸ This section is adapted from the *Town of Rowe's Pelham Lake park Forest Stewardship Climate Plan 2022-2023*

https://rowe-ma.gov/files/Rowe_Pelham_Lake_Park_FSCP_2022-2032_FINALv2_8-4-22.pdf

³⁹ <https://www.massaudubon.org/our-conservation-work/ecological-management/habitat-management/capturing-carbon>

E.2.2 STREET TREES

In Massachusetts, all shade trees existing within the boundaries of a public way or in other public areas such as parks and cemeteries are protected by law. In many communities, public shade trees exist as regal, old trees lining municipal roads that provide shade and aesthetic variation in expanses of flat, low vegetation.

In Rowe public shade trees tend to blend in with adjacent forest trees in most areas, except in Town Center and around old roads like Middleton Road. There is no formal street tree management. The street trees are mainly sugar maples that were planted/grew naturally along lanes. There was a bicentennial planting of sugar maples to replace the aging ones but many of those planted trees are not thriving.

F.3 FIELD AND MEADOW VEGETATION

Grassland, meadow, pasture, and hayfields constitute 5% of Rowe's land area. In what is otherwise a densely forested town, these open areas provide agricultural value, visual diversity, grass or meadow habitat, and where they meet forest or wetland, edge habitat. Many declining species in the northeast are associated with early successional habitats that were more abundant in the nineteenth century such as grassland, shrubland, and young forestland. The species that inhabit these early successional landscapes include common game species and many rare and endangered species. Open land in Rowe is thus important as potential habitat for species requiring early successional habitat.

F.4 POWERLINE CORRIDOR VEGETATION

Rowe has hundreds of acres of powerline utility corridor (also known as utility rights-of-way). Areas under electric transmission lines are typically kept free of tall-growing vegetation to prevent interference with power lines, in a perpetual state of early successional habitat dominated by grasses, herbaceous plants, and shrubs. Plant species vary under these powerlines depending on soil and hydrology factors as well.

These open, extensive, and continuous early-successional habitats have been found to be attractive habitat for a diversity of native insects, especially pollinator species, scrub/shrubland bird species (many of which are in decline due to the decreasing abundance of early successional habitat), and small mammals.^{40,41} Early- and mid-successional habitats also provide floral resources over much of the year, as well as a diversity of nesting substrates. These wildlife groups tend to inhabit these corridors most readily where herbicides are only selectively applied and a diversity of these plants have spread to create a low-growing natural community that outcompetes trees.

⁴⁰ Russell et al. 2018 <https://link.springer.com/article/10.1007/s10531-018-1552-8>

⁴¹ Askins et al. 2012
https://www.researchgate.net/publication/221859942_Effects_of_Vegetation_Corridor_Width_and_Regional_Land_Use_on_Early_Successional_Birds_on_Powerline_Corridors#pf2

F.5 WETLAND VEGETATION

Wetlands constitute 2% of Rowe's land area. The majority of wetlands in town are forested. The most dominant species in evergreen or evergreen/deciduous mixed wetlands is eastern hemlock, with some wetlands also containing white pine or, occasionally, larch or black spruce. Deciduous forested wetlands are predominately red maple swamps, many resulting from previous beaver activity. Shrub wetlands are also common, occurring on their own or around the edges of open waterbodies. Standing dead snags in wetlands are also important habitat for cavity nesting birds. Wetlands in Rowe can be seen on the *Plant & Wildlife Habitat Map*.

F.6 RARE, THREATENED, AND ENDANGERED PLANT SPECIES

NHESP has identified 258 native plant species as rare in the Commonwealth, and a number of these rare plants have been documented in Rowe.⁴² These plants occur in some of the Priority Habitats identified in the *Documenting and Mapping Ecosystems* section of this chapter. Fifteen of the state's protected native plant species have been found in Rowe, including four species listed as Endangered. Bogs, swamps, and other wetland habitats are particularly important for six of these species. An additional three species rely on cool ponds and riverways. The muskflower occupies springs and wet riverside seeps. Other important habitats include mixed deciduous or deciduous conifer forests and rocky uplands. Many of the woodland species thrive in the rocky soil of Rowe and rely on the cool temperatures from the higher elevation, making them susceptible to the effects of climate change. Rare plant species in Rowe are listed in Table 4-1.⁴³

⁴² NHESP Rare Species Viewer: <https://www.mass.gov/info-details/rare-species-viewer>

⁴³

Table 4-1: Plant Species in Rowe Listed as Special Concern, Threatened, or Endangered⁴⁴

Scientific Name	Common Name	MESA Status*	Most Recent Observation
<i>Alnus viridis ssp. crispa</i>	Mountain Alder	SC	2017
<i>Arceuthobium pusillum</i>	Eastern Dwarf Mistletoe	SC	2018
<i>Carex baileyi</i>	Bailey's Sedge	T	2016
<i>Carex lenticularis</i>	Shore Sedge	T	2016
<i>Corallorhiza odontorhiza</i>	Autumn Coralroot	SC	2016
<i>Juncus filiformis</i>	Thread Rush	E	2014
<i>Linnaea borealis</i>	American Twinflower	SC	2018
<i>Lygodium palmatum</i>	Climbing Fern	SC	1915
<i>Mimulus moschatus</i>	Muskflower	T	2015
<i>Myriophyllum farwellii</i>	Farwell's Water-milfoil	E	2010
<i>Ophioglossum pusillum</i>	Adder's Tongue Fern	T	1988
<i>Platanthera flava var. herbiola</i>	Pale Green Orchid	T	2021
<i>Ribes lacustre</i>	Bristly Black Currant	SC	2018
<i>Triphora trianthophora</i>	Nodding Pogonia	E	2019
<i>Trisetum spicatum</i>	Narrow False Oats	E	1989

*SC – Special Concern; T - Threatened; E – Endangered⁴⁵

Source: Massachusetts NHESP, Rare Species Viewer

G. FISHERIES AND WILDLIFE

Rowe's forests, rivers, wetlands, and open fields provide habitat for a variety of common and rare wildlife species. This section discusses wildlife species and their habitats from the perspective of natural communities, individual species, and patterns of wildlife distribution and movement across the landscape.

⁴⁴ Any NHESP MESA listed species with a most recent observation date within the past 25 years is considered to be current. Older dates may be species that have not been recently inventoried, or they may be lost from Rowe as land use has changed and water quality has changed. Fact sheets describing many of the MESA listed species and their habitats are available from the state's Natural Heritage and Endangered Species Program (NHESP) website: <https://www.mass.gov/service-details/list-of-plants>.

⁴⁵ Plants and animals listed as Endangered are at risk of extinction (total disappearance) or extirpation (disappearance of a distinct interbreeding population in a particular area). Threatened species are likely to become endangered in the foreseeable future. Species of Special Concern have been documented to have suffered a decline that could result in their becoming threatened, or occur in very small numbers and/or have very specialized habitat, the loss of which could result in their becoming threatened.

G.1 GENERAL INVENTORY

According to iNaturalist, community scientists have recorded 586 species of animals and insects in Rowe, both permanent residents and migrants.⁴⁶ The health and abundance of various habitat types, thanks to the light development footprint in Rowe, help promote the fish and wildlife populations that live in the area. These animals provide hunting and fishing opportunities for the residents, act as indicators of the overall health of the ecosystems in Rowe, and have cultural significance to many community members.

G.1.2 FISH

The Deerfield River is the most intensively fished and managed trout fishery in Massachusetts because of its relatively clean water, accessibility, and variety of fish habitats along its length. The Deerfield River along the Rowe boundary is home to brown trout, rainbow trout, brook trout, white sucker, slimy sculpin, and longnose and blacknose dace.⁴⁷ This segment of river is also stocked by MassWildlife with catchable-size rainbow and brown trout in spring and fall. This river and its tributaries would be a key habitat for several anadromous fish species, including Atlantic salmon, blueback herring, and American shad, if not prevented by several dams the length of the river that block fish passage and alter natural flows.

Starting in 2017, the Deerfield River Chapter of Trout Unlimited began monitoring the Deerfield River along Rowe's boundary for evidence of brown trout spawning and found that they are spawning, but that many eggs are being killed off during low-flow conditions. The chapter has also found evidence of wild rainbow trout and are conducting further study. Brookfield Power, the owner of the Fife Brook Dam, has now committed to ensuring minimum flow releases do not drop below 225 cubic feet per second from November 1 through April 15 in an attempt to protect the river's function as brown trout spawning habitat.⁴⁸

Numerous fish species were documented in Pelham Brook in the DEP's fish sampling conducted in 2000. In order of abundance, these were slimy sculpin, longnose dace, Atlantic salmon, brook trout, blacknose dace, and brown trout.^{49,50}

G.1.2 MAMMALS

⁴⁶ https://www.inaturalist.org/observations?nelat=42.73922595727832&nelng=-72.85394088644153&place_id=any&swlat=42.65458405522273&swlng=-72.99572703584674

⁴⁷ MassWildlife: <https://www.mass.gov/doc/deerfield-river-catch-and-release-upper-section/download>

⁴⁸ <https://www.tu.org/magazine/conservation/from-the-field/in-massachusetts-a-step-toward-a-premier-wild-trout-fishery/>

⁴⁹ MassDEP *Deerfield River Watershed 2000 Water Quality Assessment Report*:

<https://www.mass.gov/doc/deerfield-river-watershed-water-quality-assessment-report-2000/download>

⁵⁰ Atlantic salmon fry were being stocked at the time as part of a multi-state Atlantic salmon restoration effort, which is no longer active.

Rowe is home to all of the mammals common in western Massachusetts: long-tail weasel, mink, fisher, otter, gray and red fox, coyote, raccoon, skunk, smaller rodents, groundhogs, beaver, porcupine, and white-tailed deer, among others. Terrestrial upland species that require large home ranges also frequent Rowe, including black bear, moose, and bobcat.

G.1.3 BIRDS

According to the popular bird sightings website eBird, over 75 species of birds have been identified just in the town center of Rowe, including a population of cliff swallows who live on the Town Hall.⁵¹ For birds of prey, barred owls are commonly heard throughout town on any summer evening, and several species of hawks, falcons, and turkey vulture are common sights over fields. Wild turkey are a common site in Rowe fields and forest. Common wetland species include great blue herons, Canada geese, and red-winged blackbirds.

G.2 VERNAL POOLS

Vernal pools are ephemeral pools that collect rainfall and raised groundwater and are ponded through the spring and summer. These small pools dry completely by the middle or end of summer. This annual drying prevents fish from establishing permanent populations. They are critical breeding habitat for many amphibian and invertebrate species, including obligate vernal pool users, fairy shrimp, salamanders, and frogs.

Certified Vernal Pools (those that meet the criteria established by the Natural Heritage and Endangered Species Program) are protected to some extent by the Massachusetts WPA and are protected by additional state and federal regulations. The total number of vernal pools in Rowe is unknown, but Rowe contains one Certified Vernal Pool (identified on the *Plant & Wildlife Habitat Map*) and approximately 50 potential vernal pools.⁵² Rowe has the potential to have many more pools certified. Vernal pools that are certified are protected by state law with a 100-foot buffer from development.

G.3 WILDLIFE CORRIDORS

Permanently protected wildlife corridors are critical to ensuring that animals have the ability to travel between large blocks of habitat or between bodies of water. Animals must have a suitable amount of land to meet their needs and have access to different resources during different seasons, dispersal, mating, and resources for raising young. Many species of wildlife in Rowe have home ranges greater than fifty acres in size, such as bear and moose. Even those species with smaller home ranges, such as frogs and warblers, move across the landscape between sources of shelter, water, food and mating areas.

NHESP considers the riparian areas along the Deerfield River and Pelham Brook as Priority Habitats of Rare Species (see *Documenting and Mapping Biodiversity and Ecosystems* in this section). These

⁵¹ eBird: <https://ebird.org/hotspot/L2821334>

⁵² MassGIS NHESP Certified Vernal Pools, updated continually

waterbodies play a dual role for the region's wildlife. Riparian corridors often contain a greater degree of species diversity than any other portion of the landscape. They also serve as **important regional migration corridors for anadromous fish as well as for mammals** like the bobcat that may use the riparian zones to move between habitat areas. **River corridors are also major migration routes for many species of migratory birds.** According to the Department of Environmental Restoration, the Bear Swamp Upper Reservoir, Mill Pond, Pelham Lake, and Sherman Reservoir dams all rank in the 90th percentile of estimated ecological benefit associated with removing the dam. The Fife Brook Dam ranks in the 95th percentile, meaning that removing that dam would be more beneficial than the removal of any other dam in Rowe.

Large blocks of contiguous forestland across Rowe's hills provide interior forest habitats for a variety of birds and mammals. These areas act both as north-south migration corridors, and as lowland-upland migration corridors. According to the 2022 – 2023 *Pelham Lake Park Forest Stewardship Climate Plan*, Pelham Lake Park has an elevation and species gradient across which is found an array of mostly hardwood forest, featuring beautiful, and quite large, hardwoods, significant hemlock inclusions, and white pines towering over the main forest canopy in many areas. This gradient provides opportunities for species to move up or down the slope as they try to find needed microclimates under a changing climate.

Fragmentation and human development can interrupt animal life and lead to increased human-wildlife conflict when animals use human resources within their territory. Connectivity between habitats is essential for long-term survival of populations and connectivity can occur either locally, aiding small scale migration and can be handled within a township, or regionally, allowing long-distance dispersal and requiring the cooperation of multiple towns or states. Rowe contains several conservation and wildlife sanctuary areas that contribute to the permanently protected wildlife corridor:

- Pelham Lake Park
- Nan Williams Conservation Area (Franklin Land Trust)
- Harriet Carpenter Memorial Forest and the Carey Memorial Woodland (New England Forestry Foundation)
- Maxwell Brook WMA (Massachusetts Fish & Wildlife)
- Other properties owned by the Town of Rowe and private lands placed in conservation restrictions

Pollinator corridors formed by waterways, powerlines, roadsides, and networks of gardens, meadows, and agricultural lands are important habitat for pollinators populations (*see Pollinator Insect and Habitat Decline* in this section for more information about the urgent need to sustain pollinator populations in Massachusetts).

G.4 RARE, THREATENED, AND ENDANGERED WILDLIFE AND FISHERIES SPECIES

There are 432 native species protected by the Commonwealth of Massachusetts, including 173 species of animals.⁵³ Rowe has a total of seven protected animal species, three of which are considered endangered (Table 4-2). Three of these protected species rely on aquatic habitats, particularly larger ponds and rocky streams. The longnose sucker in particular occupies cool streams, making them susceptible to the effects of climate change and land use. Three bat species are listed due to the effects of white nose fungus. They occupy a number of old mine shafts and other rocky caves in town. Some of these mine shafts are protected, such as with the Maxwell Brook WMA, which was purchased by the Department of Fish and Game (DFG) for protection of the bats in the Mary Louise mine. The Northern long-eared bat is additionally listed as Threatened at the federal level. Lastly, the orange sallow moth inhabits dry, open oak woodland on rocky ridges and the edges of old fields and power line cuts. A number of listed species also visit Rowe including the American Bittern (E), Sharp-Shinned Hawk (SC), Early Hairstreak (T) and Mourning Warbler (SC).

Table 4-2: Animal Species in Rowe Listed as Special Concern, Threatened, or Endangered

Taxonomic Group	Scientific Name	Common Name	MESA Status*	Most Recent Observation
Bird	<i>Haliaeetus leucocephalus</i>	Bald Eagle	SC	Historic**
Butterfly/Moth	<i>Pyrrhia aurantiago</i>	Orange Sallow Moth	SC	2009
Dragonfly/Damselfly	<i>Boyeria grafiana</i>	Ocellated Darner	SC	1997
Fish	<i>Catostomus</i>	Longnose Sucker	SC	2016
Mammal	<i>Myotis lucifugus</i>	Little Brown Bat	E	2019
Mammal	<i>Myotis septentrionalis</i>	Northern Long-eared Bat	E	2009
Mammal	<i>Perimyotis subflavus</i>	Tricolored Bat	E	2019

*T= Threatened, SC = Special Concern; E = Endangered⁵⁴

**Now frequently sighted in Rowe

Source: Massachusetts Natural Heritage and Endangered Species Program, Rare Species by Town Viewer

State-listed rare species and Priority Habitat areas are regulated by MESA. Projects resulting in a "take" of state-listed rare species and disturbing two or more acres of Priority Habitat of Rare Species may be required to file an Environmental Notification Form (ENF) with the state.

As mentioned in the beginning of this section, climate change is expected to alter species distributions. As species move to adjust to changing conditions, federal, state and local agencies and entities involved in land conservation need a way to prioritize strategic land conservation that will conserve the maximum amount of biological diversity despite shifting species distribution patterns.

⁵³ NHESP Rare species viewer: <https://www.mass.gov/info-details/rare-species-viewer>

⁵⁴ Plants and animals listed as Endangered are at risk of extinction (total disappearance) or extirpation (disappearance of a distinct interbreeding population in a particular area). Threatened species are likely to become endangered in the foreseeable future. Species of Special Concern have been documented to have suffered a decline that could result in their becoming threatened, or occur in very small numbers and/or have very specialized habitat, the loss of which could result in their becoming threatened.

G.5 ANALYSIS OF ROWE'S WATER RESOURCES, VEGETATION, AND WILDLIFE

Keeping forests, riparian zones, and other whole habitats intact—through land protection and sustainable and climate-smart management—will help preserve intact habitat's role as interior forest, wildlife corridors, and whole ecosystems. **The most important areas to protect within Rowe include those identified on the *Plant & Wildlife Map* as BioMap Core Habitat.** These mapped areas are more likely to support both rare, threatened, and endangered wildlife species as well as benefit whole suites of species, including those who may be common now but will be affected to the challenges of climate change and biodiversity loss. The approach of protecting entire habitats will undoubtedly include the Deerfield River, which, although it is highly hydro-modified, still offers invaluable habitat and recreation opportunity and has the potential to do a better job of sustaining wildlife such as native trout, if well managed.

Forest management now underway at Pelham Lake Park is an important opportunity for private woodland owners in Rowe to learn more about climate-smart land management strategies aimed at increasing forest resilience, such as patch cutting to promote regeneration and structural diversity, invasive management, and reducing the impacts of deer. What is learned at Pelham Lake Park can be a model for residents across Rowe to help protect and restore ecosystems in the face of the various stressors they face today.

H. SCENIC RESOURCES, UNIQUE ENVIRONMENTS AND RECREATION RESOURCES

H.1 SCENIC RESOURCES AND UNIQUE ENVIRONMENTS

The characteristics that allow a visitor to distinguish Rowe from other towns in the region may be different than the unique qualities and special places that only residents can really know. This section identifies the scenic landscapes, archeologic, historical, or cultural features, unusual geological features, and unique environments that most Rowe residents would agree represent the essence of Rowe's character. In many ways the history of Rowe—how people came to settle the land, use its resources, and enjoy its forests, streams, and bodies of water—can be seen in the landscapes that have retained a sense of the past. The unique environments in Rowe play a very important role in providing residents with a sense of place.

The purpose of inventorying scenic resources and unique natural environments in Rowe is to provide a basis for setting resource protection priorities. To this end, this section includes information about the different values associated with each scenic resource and natural environment, and indicates areas where multiple values are represented in one landscape (See Table 4-3 and the *Scenic Resources & Unique Environments* map on the following pages).

Table 4-3: Significant Scenic/Historic/Natural Landscapes/Environments in Rowe

Note: This table identifies the scenic resources and unique environments that most Rowe residents would agree represent the essence of Rowe's character. While Rowe's parks and open space are described in Section 5, this table summarizes some of these most notable scenic landscapes, and includes areas not otherwise mentioned in this plan.

Map #	Scenic Resources and Unique Environments	Description	Ecological Value	Recreational Value	Historical / Cultural Value
Scenic Landscapes					
	Pelham Lake beach and Mill Pond	Iconic view of the Mount Todd - Mount Adams range over the water from the west. These views are accessed via Zoar Road and Pond Road to Town Park Road.		X	X
	Pelham Lake Park mountains	The Rob's View Trail is a short hike from the Davis Mine parking area and looks southwest over the lake and surrounding hills of Rowe, with additional views of the Mt. Greylock range, Monroe and Florida Mountains, the Florida church steeple, and hilltop windmills. The Adams Trail has two breathtaking views: the Northwest View on its spur trail looks northwest over the lake and surrounding hills with views as far west as the Florida Mountain ridge and Mt. Greylock. The Southeast View trail off of the top of Adams Mountain offers spectacular views of the hills of Heath, Charlemont, Hawley, the Berkshire East ski area, with glimpses of Mt. Monadnock in New Hampshire on a clear day and east along the Deerfield River valley.	X	X	
	Pulpit Rock	In the western part of Rowe, Pulpit Rock stands 900 feet above the Deerfield River Valley in western Rowe with stunning views of the valley. It is accessed via the Bear Swamp Trail. Once a prominent geologic feature, the "pulpit" cleaved off in the 1900s.		X	
	Beaver Pond at Pelham Lake Park	In the northern part of Pelham Lake Park, a meadow and beaver pond offer mid-range views and a variety of plant life and color.	X	X	X

DRAFT FOR PUBLIC ONLY
 ROWE OPEN SPACE AND RECREATION PLAN

Map #	Scenic Resources and Unique Environments	Description	Ecological Value	Recreational Value	Historical / Cultural Value
	Negus Mountain	Views from the top of Negus Mountain, accessed via a very steep trail from Zoar Road, range across the Deerfield River valley to Mohawk Trail State Forest in Charlemont, and along the river valley southeast Charlemont Center and northwest to Monroe and Vermont.	X	X	X
Archeological, Historic or Cultural Areas					
	Rowe Town Center	The Town of Rowe was incorporated in 1785 and still retains much of that small town rural character with its historic structures and bucolic views over the Mill Pond. The Town Hall was built in 1895 and still serves as community space, government offices, and post office. The Unitarian stone church was built in 1905 and currently owned by the nonprofit Rowe Camp & Conference Center. Up the knoll from the church is the town's library, built in 1935. Down the hill headed out of town is Rowe's Historical Museum, housed in the old Village School house built in 1848. The Baptist Church next to it was built in 1876. In addition, there are several private residences or cottages of the late 1800s and early 1900s vintage with unique architectural features, many of which have more Greek Revival detail than is typical for small homes. Parts of Rowe Town Center are in BioMap Core Habitat.	X		X
	Fort Pelham	Fort Pelham lies along Pelham Brook north of Town Center. Fort Pelham was a British Military Garrison built in 1744, during King George's War, and abandoned in 1754. Parts of the Fort Pelham Property are in BioMap Core habitat.	X	X	X
	Remnant rural historic structures and landscape signs	Historical signs mark now defunct old mills and dams, and a few old one-room school buildings throughout town. There are numerous old stone walls and foundations of farms and residences throughout the forests as well as old lanes and woods roads no longer in use.		X	X

DRAFT FOR PUBLIC ONLY
 ROWE OPEN SPACE AND RECREATION PLAN

Map #	Scenic Resources and Unique Environments	Description	Ecological Value	Recreational Value	Historical / Cultural Value
Unusual Geologic Features					
	Glacial erratics	Several large glacial erratics can be seen in various parts of town with the most notable being the erratic above the Switching Station in west Rowe.	X	X	X
	Historic mines	The remnants of several old mineral mines can be found around town. The minerals mined in Rowe include soapstone, talc, iron pyrite for its high sulphur content, and copper. Multiple historic mine shafts in Rowe are habitat for bats.	X	X	X
Unique Environments					
	High-terrace floodplain forest ecosystem	High-terrace floodplain forests occur on raised banks adjacent to high-gradient rivers and streams. In general, these communities are within the 100-year flood zone of rivers, so are river influence but typically do not flood annually. Soils are typically rich silt loams with a distinct surface soil organic layer, which make disturbed areas in them prone to invasions by exotic plant species. The species in these forests tend to be a mix of species characteristic of alluvial floodplain forests mixed with rich, upland forests.	X		
	Mesic forest ecosystem	Rich mesic forests are found on concave, mid- to lower slopes with downslope movement of nutrients and organic matter. These areas of rich soil and moderate moisture regime are also rich in species. These forests are dominated by sugar maple; the herbaceous layer usually has a dense mix of spring ephemeral species.	X		
	High-energy riverbank ecosystem	High-energy riverbank communities occur within the zone of active erosion and sedimentation of steep-gradient, fast flowing rivers and are shaped by continued annual flood events and winter ice scour. Characterized by cobble, sand, and sparse, open vegetation, characteristic species include native and non-native herbaceous plants, sedges, and short shrubs.	X		

DRAFT FOR PUBLIC ONLY
 ROWE OPEN SPACE AND RECREATION PLAN

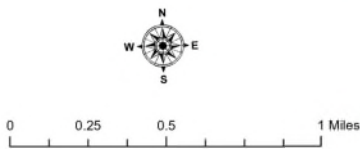
Map #	Scenic Resources and Unique Environments	Description	Ecological Value	Recreational Value	Historical / Cultural Value
	Mine shafts	Bats are attracted to mines shafts in Rowe because they are far from development and because they mimic the safety and unique conditions of cave environments, offering consistent temperatures and humidity that bats prefer for critical roosting periods.	X		

Placeholder for Scenic Resources and Unique Environments Map

DRAFT

Number	Name
1	Pelham Lake Beach
2	Mill Pond
3	Adams Mountain
4	Todd Mountain
5	Zoar Gap
6	Negus Mountain
7	Rowe Center
8	Fort Pelham
9	Glacial Erratic
10	Pulpit Rock

Sources: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.



- Unusual Geographic Feature

Historic Area

Scenic Landscape
- Abandoned Mine

Trailhead

Permanently Protected Open Space
- Building Structure

Rail Line

Road

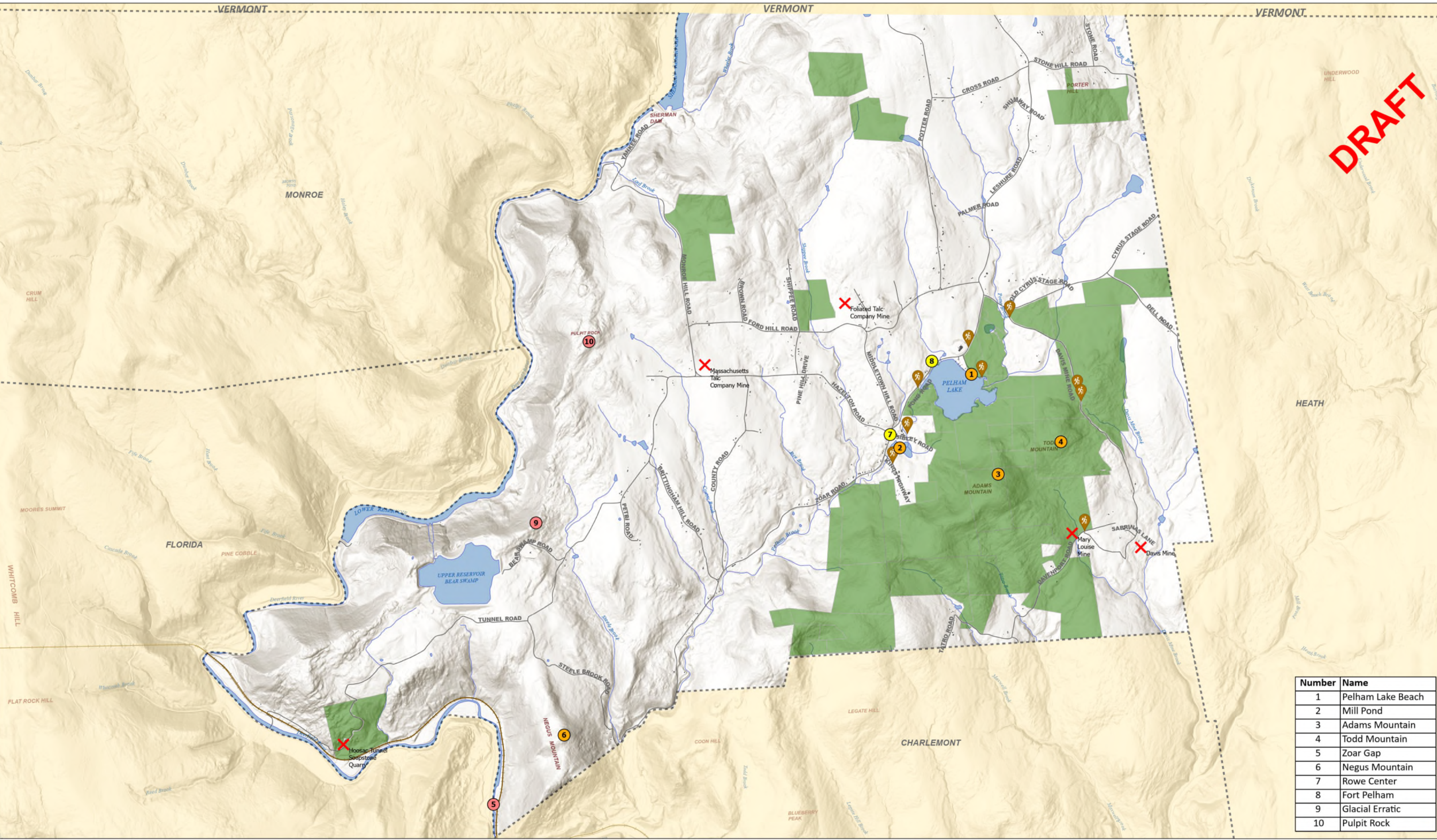
River, Stream

Waterbody

Wetland

Scenic Resources & Unique Environments

Town of Rowe Open Space & Recreation Plan 2024



H.2 RECREATION RESOURCES

Pelham Lake Park is the crown jewel of recreation areas in Rowe, but there are many options for hiking, hunting, fishing, and wildlife-viewing across Rowe. Based on the results of the 2022 Rowe Open Space and Recreation survey, not all residents know where all of these areas can be found. Figure 4-12 shows Rowe's publicly accessible recreation areas by ownership.

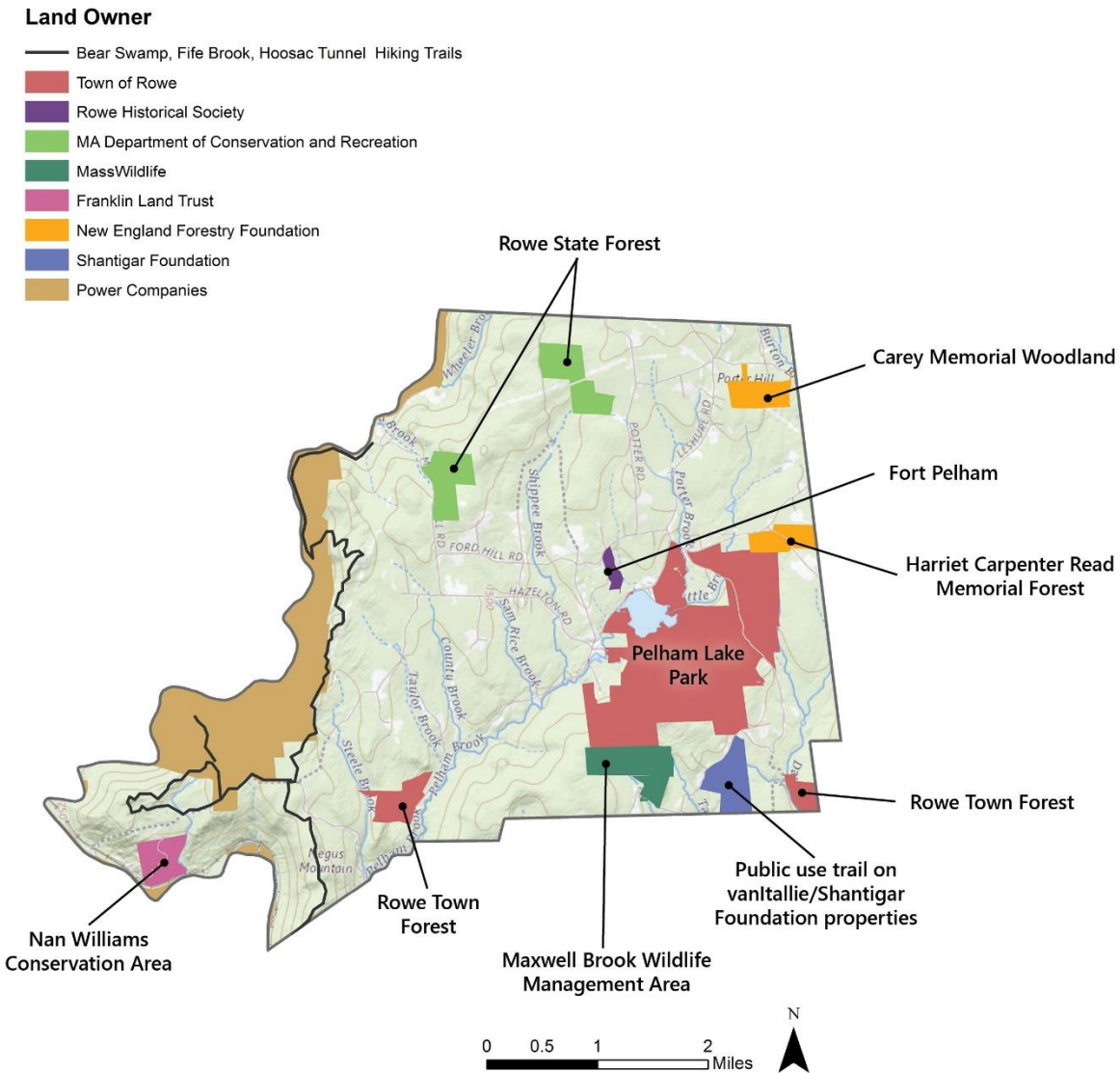


Figure 4-12. Publicly Accessible Outdoor Recreation Areas in Rowe

H.2.1 PELHAM LAKE PARK

Rowe's most significant recreation resource is Pelham Lake Park. Pelham Lake Park is 1,331 Town-owned acres of forests, fields, wetlands, and a 81-acre lake. The initial gift of 485 acres (including the lake) was generously donated in 1955 by Percy Brown, under the covenant that it be kept as a wildlife sanctuary and for the recreational purposes of Rowe residents and their guests. The Park is managed by

the Rowe Park Department by one full-time year round Park Manager and overseen by a three-person Park Commission.

The Park has evolved to provide three principal recreation opportunity areas:

- The extensive recreational trail network
- The beach and surrounding picnic areas, tennis courts, and riding ring area
- Fishing on the lake and some hunting in the Non-Covenant Areas

The Park offers over 20 miles of trails for

- Hiking
- Trail running
- Walking

Certain designated trails may also be used for

- Horseback riding
- Mountain biking
- Snowmobiling
- Cross-country skiing
- Snowshoeing

Maintenance of the trails is currently a year-round and nearly all-consuming task for the Park Manager and for summer seasonal staff when available. Recommendations from the 2022 Rowe Forest Stewardship Climate Plan for maintenance of the trails are included in the *Section 9 Action Plan*.

The Park beach and picnic area is open summers to residents and their guests and staffed with lifeguards. The Park beach offers

- A picnic area that features picnic tables, charcoal grills, and several newly built stone fireplaces for cooking.
- Two picnic pavilions, one for a single table and the other for two tables.
- A brand new Town-funded playground on the edge of the beach area.
- A foursquare/half basketball court area.
- Park kayaks
- A canoe
- A rowboat
- Two paddle boards
- A pontoon boat available on request for tours of the lake during the summer months

The Park also has two tennis and three pickleball courts, a horse-riding ring for equestrians at the north end of the park, and a small skate-boarding park in the center of town near the town garage. Park staff oversee the town fitness center on the second floor of the Town Hall with several fitness machines, exercise equipment, weights, and other apparatus. A fitness instructor is available three-quarters of the year, eight hours a week to set up programs for residents. Once a week the Park Department sponsors a free one-hour yoga class for residents.

Senior picnics are catered twice a summer by the Park Department. There are various nature programs sponsored by the Cultural Council and the Park Department throughout the year. There is a summer recreational program for children 5 to 12 years old that is four weeks long Monday through Thursday with a different nature theme each week utilizing the park's diverse environments.

H.2.2 TRAILS

Rowe offers numerous other opportunities for hiking trails. Eleven miles of hiking trails and dirt roads available for off-road vehicles in the western part of town in land predominantly owned by hydroelectric utility companies. Trails stretch from the Monroe Bridge, around the Bear Swamp Reservoir, and down Tunnel Road and Negus Mountain. These trails can be accessed via Zoar Gap, the Monroe Bridge Dam, and at various points marked with kiosks along the unmaintained portion of Tunnel Road.

The power lines in Rowe offer some stunning scenery and great hiking.

The Shantigar Retreat Center, on Davenport Road in southwest Rowe, permits public access to the 2.5 mile Warner Hill hiking that takes walkers along the crest of Warner Hill.

The Nan Williams Conservation area, located along the bottom portion of Tunnel Road, is accessible via the road and offshoots used by off-road vehicles.

The Fort Pelham Trail through the Fort Pelham property is 0.5 miles long and accessible at sign posts marking the trail entrance along both Pond Road and Ford Hill Road.

H.2.3 UNDEVELOPED RECREATION AREAS

The two noncontiguous Rowe Town Forest properties are located in the southern part of town on Zoar Road and Davis Mine Road total 140 acres of forest open to the public. There are no designated parking lots, but the Zoar Road forest is readily accessible across from the Town transfer station.

In northwestern Rowe two noncontiguous areas of Rowe State Forest located off Potter Road and off Monroe Hill Road total 257 acres. Like the Town Forests, there are no designated parking areas or trails. These forests are managed by the Department of Conservation and Recreation (DCR).

DRAFT FOR PUBLIC ONLY
ROWE OPEN SPACE AND RECREATION PLAN

The Maxwell Brook WMA is 168 acres off Tatro Road. It is open to the public for fishing, hunting, trapping, hiking, and wildlife viewing. WMAs are intentionally wild, purposely without trails so that visitors will find natural landscapes.

DRAFT

I. ENVIRONMENTAL CHALLENGES

The overarching environmental challenges for Rowe’s community are climate change and biodiversity loss, as discussed throughout this section. In addition to these interrelated challenges, there are several other environmental challenges that impact Rowe. This section describes those issues and the efforts that the Town either has already implemented or may want to consider in order to address these issues.

I.1 ENVIRONMENTAL EQUITY & ENVIRONMENTAL JUSTICE

Environmental Justice is based on the principle that all people have a right to be protected from environmental pollution and to live in and enjoy a clean and healthful environment. The Environmental Justice Executive Order No. 552 requires EEA agencies to take action in promoting environmental justice. The Executive Order requires new environmental justice strategies that promote positive impacts in environmental justice communities and focus on several environmental justice initiatives. EJ communities are defined as being low income, having a high minority population, and/or to have a high rate of English language isolation.⁵⁵

Because it shares a Census block group with Monroe and part of Charlemont, Rowe is identified as an Environmental Justice Community based on the income criteria. While Rowe itself is actually one of the wealthier towns in Franklin County, there are low-income residents and other climate-vulnerable populations (discussed in *Section 3*) whose vulnerabilities and barriers to access must be considered. Meeting the open space and recreation needs of the community includes developing **equitable access and use of the Town’s open space and recreation facilities for residents of all ages, socioeconomic backgrounds, ethnicities, and physical abilities**. Additionally, as detailed in *Section 3*, one of Rowe’s challenges is in increasing the viability of developing affordable housing.

I.2 FLOODING, EROSION, AND SEDIMENTATION

Flooding is identified as a top hazard in the 2021 Rowe MVP Plan. As previously outlined in the *Flood Hazard Areas* section of this chapter, areas vulnerable to flooding are the municipal buildings in Town Center, the Town landfill, and Tunnel Road in the area around Bear Swamp Upper Reservoir. Town Hall, the DPW building, the fire station, and the broadband hut are at most risk of flooding, though the Town Hall records are generally protected. Many homes are also at risk of flood damage.

Areas prone to flash flooding, washouts, and mudding are the 30% of the Town’s roads that are gravel, including Davenport Road, Davis Mine Road, and Potter Road.

Changes in the intensity and frequency of storms due to climate change will also be a challenge for Rowe, as a “100 year” storm, which once had a 1% chance of occurring in any given year, will likely occur more frequently in the future. Flooding from Tropical Storm Irene in 2011 provided a glimpse of what

⁵⁵ More information about how EJ Populations are designated is available here: <https://www.mass.gov/info-details/environmental-justice-populations-in-massachusetts>

can happen when a large amount of rain falls on a region within a short period of time. The town and the entire region will need to work on how to best mitigate damages to existing infrastructure and property from such flooding, and how, with any new development, to allow this flooding to occur naturally without exacerbating it. The fact **that this will need to be a regional, watershed-wide effort cannot be understated**. Looking at a watershed holistically, and ensuring there are outlets for floodwaters upstream, will help minimize the overall impact downstream.

I.3 GROUND AND SURFACE WATER POLLUTION

Nonpoint source pollution (NPS) comes from contaminants released in a wide area and not from a single source such as a pipe. It is most commonly transported by stormwater runoff. A variety of land uses can lead to the runoff of sediments, pesticides, fertilizers, chlorides, effluent, and hazardous wastes into waterbodies. Sources include failing septic systems, road salt application, erosion of road material, improperly disposed of hazardous materials, dog waste, agricultural or lawn fertilizers and pesticides, and grazing animals, among other things. **Non-point source pollution can result in the contamination of either surface and groundwater.**

Non-point source pollution in Rowe can affect the town's private wells. **There is a direct link between above-ground land use and below-ground water quality.** When precipitation runs off impervious or semi-impervious surfaces like asphalt or lawn, instead of seeping into the ground rainwater will flow across the ground's surface where it may pick up and carry contaminants into streams, ponds, lakes or into the groundwater when it does finally infiltrate. Some of the groundwater moves through subsurface soil layers into streams, while other seeps down into aquifers. Erosion along riverbanks is also a major source of sedimentation that can have a negative impact on water quality.

Source Water Assessment and Protection (SWAP) Reports were prepared in the early 2000s for Yankee-Rowe nuclear power station and the Rowe Elementary School. The overall vulnerability ranking of **Yankee-Rowe's groundwater susceptibility to contamination for the system was high** due to the absence of a continuous, hydrogeologic barrier—likely clay—throughout the recharge area that can prevent contaminant migration from the surfaces. Although the plant has been fully decommissioned since the release of the report, activities such as hazardous material storage, spent fuel storage, stormwater runoff from impervious surfaces, and chemical use in the transmission line right-of-way may still be occurring in the water supply protection areas. There are a number of deed restrictions on the former nuclear site that dictate allowable uses.

Rowe Elementary School also scored high for source susceptibility. According to the report, wells drilled in the grey to green medium-grained schist of the Moretown Formation are considered highly vulnerable to potential contamination from the ground surface because there is no significant hydrogeologic barrier, such as clay, to prevent surface contamination from migrating into the bedrock

aquifer. Although the SWAP reports are dated, the Town can refer to the recommendations to protect the quality of the community's water supply.⁵⁶

The decommissioned Yankee Nuclear Power Station has been a source of groundwater contamination in Rowe, most notably from tritium. However, according to MassDEP, current levels "do not pose a risk to human health or the environment."⁵⁷ Located near the border with Monroe, YNPS operated from 1960 to 1992. Decommissioning was completed in 2007 and inspection and groundwater monitoring activities have been ongoing since.⁵⁸ The most recent groundwater monitoring report from June, 30, 2021 states that "tritium concentrations continue to be stable or decreasing across the site," with no tritium detected in the surface water samples.

See *Surface Waters* in this section for a detailed description of impaired waterbodies.

I.4 HAZARDOUS WASTE AND BROWNFIELD SITES

Yankee Atomic Electric Company permanently closed the Yankee-Rowe nuclear power station, a 185 MW pressurized water reactor, in 1992 after 32 years of operation. After closing, Yankee Atomic sought to immediately dismantle the site to return it to "green field" status. In reality, the decommissioning and dismantling process took ~16 years. Dismantled pieces of the plant, including the reactor vessel, the four steam generators, and the pressurizer, were permanently disposed at a low-level radioactive waste disposal facility in South Carolina. In 2002, 533 spent fuel assemblies were transferred from wet pool storage to dry cask storage (16 above-ground steel canisters within reinforced concrete casks). These casks remain on site in Rowe, in a central, guarded location. The cleanup met state and federal regulations. The 2-acre Independent Spent Fuel Storage Installation (ISFSI) site remains under federal license by the Nuclear Regulatory Commission (NRC License No. DPR-3 [NRC Docket No. 50-029]). Yankee Atomic continues to monitor groundwater, under state Department of Environmental Protection regulations. In 1998, Yankee-Rowe formed a Community Advisory Board to monitor the decommissioning process and consider future uses for the land, but has not made any decisions about the future use of its former lands, of which only a small portion houses the spent fuel.⁵⁹

In addition to the Yankee Atomic hazardous material site, the Massachusetts Department of Environmental Protection (DEP) maintains a list of sites where known hazardous waste contamination has occurred. In Rowe, eight sites were reported to the DEP between 1995 and 2011. All sites have now

⁵⁶ MassDEP SWAPs: <https://www.mass.gov/doc/yankee-atomic-electric-company-swap-report/download> and <https://www.mass.gov/doc/rowe-elementary-school-swap-report/download>

⁵⁷ MassDEP Phase II Comprehensive Site Assessment Report Final Report and Public Comments Addressed for Yankee Nuclear Power Station, 2009: <https://www.nrc.gov/docs/ML0911/ML091130125.pdf>

⁵⁸ Reports from the groundwater monitoring at Yankee-Rowe can be found at <https://yankeerowe.com/document-room/>.

⁵⁹ <https://www.recorder.com/Archives/2013/08/vtYankeeRoweFlashback-GR-082813>

either been cleaned up or determined to pose no significant risk to public health. There have been no reports since 2011.⁶⁰

As defined by the U.S. Environmental Protection Agency (EPA), "brownfields" are properties that the expansion, redevelopment, or reuse of may be complicated by the actual presence or perceived potential presence of a hazardous substance, pollutant, or contaminant. There are no brownfield sites in Rowe.⁶¹

I.5 IMPACTS OF LAND CONVERSION AND DEVELOPMENT

Intact forests contribute a wealth of benefits to the community, including scenic character, wildlife habitat, clean air and water, carbon sequestration, numerous outdoor recreation opportunities, and wood products. Land conversion is the change of one land use and/or land cover type to another, such as farmland to manufacturing or undeveloped forest to a residential area. The removal of trees and vegetation as part of land conversion can lead to increased stormwater runoff, erosion, and siltation. It also disrupts existing habitat.

The likelihood of land conversion into residential or commercial development in Rowe is very low in the near term, however climate migration in the coming decades may change this. **Rowe is well equipped to control for dense development by applying several existing state regulations**, including Title 5 Regulations and WPA Regulations, and by continuing to review and update the Town's Zoning Bylaw.

In some towns, large-scale ground-mounted solar development has been the primary driver of land conversion over the past decade, converted acres of forest or farm field to fenced meadow. **Pressure to develop open space into large-scale solar arrays and battery storage facilities is intensifying across the region.** Rowe has created solar bylaws to proactively plan for solar development, but the bylaws could be updated to ecological impacts, stormwater management, pollinator habitat, battery storage, etc.

I.6 LANDFILLS

According to the Mass DEP Bureau of Waste Prevention, Rowe has two inactive municipal landfills and one closed private landfill. The Rowe Landfill and former Rowe Woodwaste Landfill are a municipally owned landfill located on Zoar Road down the road from the Refuse Gardens, the Town transfer station. Neither landfill is lined or capped, and their closure status is therefore considered "incomplete." The former Yankee-Rowe nuclear power station has an unlined, but capped landfill that is considered closed. Although there are no known concerns about the risk of the Town landfills to groundwater, the Rowe MVP plan noted that the Town landfill is right on the edge of Pelham Brook and, not being formally capped, poses **a potential contamination risk in the future due to stronger storms.**

⁶⁰ The full list of sites can be found by searching the DEP database at <https://eeaonline.eea.state.ma.us/portal#!/search/wastesite>

⁶¹ <https://www.mass.gov/service-details/find-brownfields-sites>

I.7 INVASIVE SPECIES

Invasive species are defined as those that have been recently introduced to a new ecosystem in which they are likely to cause significant harm. This harm can be in the form of economic damage, competition for resources with native plants and animals, disruption of ecological networks, spreading disease and ultimately, altering ecosystem function. In particular, invasive species can alter ecological networks by crowding out native species, altering soil chemistry or ecosystem structure to prevent the establishment of native populations and being less nutritious or outright toxic to native predators. Invasive species additionally have certain characteristics that make them particularly adapted for surviving in a new environment. These include tolerance of a broad range of environmental conditions, ability to disperse or travel long distances, ability to compete efficiently for resources, greater phenotypic plasticity (ability to responding to changing conditions), higher reproductive rates, and shorter time to maturity.

I.7.1 INVASIVE PLANTS

The state of Massachusetts currently has 72 plant species categorized as invasive. Only 21 of these species are currently present in Rowe, however, **there are a rising number of invasive species and their spread is becoming more ubiquitous**. The range of certain invasive species in the Rowe area is limited by the temperature extremes and snowfall; as climate shifts, these species will have increased likelihood of survival, range expansion, and outbreaks. Climate change is a particular danger to communities at risk from invasive species. Climate change and invasive species have interactive effects that magnify the effects of both. For instance, the traits that make these species favorable in novel habitats may also be favored by climate change conditions, adaptation for warmer temperatures can help them outcompete or out survive cold-adapted native species. Additionally, extreme storms, which are expected to be more prevalent as the climate changes, can create breaks in the forest canopy that allow invasive plants to become established in forest interiors. Table 4-4 is a list of invasive plant species that have been documented in Rowe by the Franklin County Flora Group as of March 2019.

Table 4-4: Invasive Species, Rowe

Latin Name	Common Name	Observed in Rowe	Observed in Neighboring Town
<i>Acer platanoides</i>	Norway maple	Y	Y*
<i>Aegopodium podagraria</i>	Bishop's goutweed	Y	Y*
<i>Ailanthus altissima</i>	Tree of heaven	N	Y*
<i>Alliaria petiolata</i>	Garlic mustard	Y	Y*
<i>Berberis thunbergii</i>	Japanese barberry	Y	Y*
<i>Cabomba caroliniana</i>	Carolina fanwort	N	N
<i>Celastrus orbiculatus</i>	Oriental / Asian bittersweet	Y	Y*
<i>Vincetoxicum nigrum</i>	Black swallow-wort	N	Y+
<i>Elaeagnus umbellata</i> var. <i>parvifolia</i>	Autumn olive	Y	Y*
<i>Euonymus alatus</i>	Burning bush	Y	Y*
<i>Fallopia japonica</i> var. <i>japonica</i>	Japanese knotweed	Y	Y*
<i>Ficaria verna</i> ssp. <i>bulbilifer</i>	Lesser celandine / Fig buttercup	N	N

Latin Name	Common Name	Observed in Rowe	Observed in Neighboring Town
<i>Frangula alnus</i>	European / Glossy buckthorn	Y	Y*
<i>Hesperis matronalis</i>	Dame's rocket	Y	Y*
<i>Iris pseudacorus</i>	Yellow iris	N	Y*
<i>Ligustrum obtusifolium</i>	Border privet	N	Y*
<i>Lonicera xbella</i>	Bell's honeysuckle	N	Y*
<i>Lonicera japonica</i>	Japanese honeysuckle	N	Y+
<i>Lonicera morrowii</i>	Morrow's honeysuckle	Y	Y*
<i>Lysimachia nummularia</i>	Creeping jenny / moneywort	Y	Y*
<i>Lythrum salicaria</i>	Purple loosestrife	Y	Y*
<i>Microstegium vimineum</i>	Japanese Stiltgrass	N	Y*
<i>Myriophyllum heterophyllum</i>	Variable water-milfoil / Two-leaved water-milfoil	N	Y+
<i>Myriophyllum spicatum</i>	European water-milfoil / spike water-milfoil	N	Y*
<i>Myosotis scorpioides</i>	Forget-me-not	Y	Y*
<i>Persicaria perfoliata</i>	Mile-a-minute vine or weed / Asiatic tearthumb	N	N
<i>Phalaris arundinacea</i>	Reed canary-grass	Y	Y*
<i>Phragmites australis ssp. australis</i>	Common reed	Y	Y*
<i>Potamogeton crispus</i>	Crisped pondweed	N	Y*
<i>Rhamnus cathartica</i>	Common buckthorn	Y	Y*
<i>Robinia pseudoacacia</i>	Black locust	Y	Y*
<i>Rosa multiflora</i>	Multiflora rose	Y	Y*
<i>Trapa natans</i>	Water-chestnut	N	N
<i>Tussilago farfara</i>	Coltsfoot	Y	Y*

* Species identified in a town sharing a physical border with Rowe

+ Species identified in a town sharing a physical border with a town bordering Rowe

Source: Bertin et al. 2019

All of these species can be troublesome and difficult to control once introduced. It is imperative that the Town continues to plant native species, which will better support pollinators, insects, birds, and mammals.

1.7.2 INVASIVE TREE PESTS AND PATHOGENS

Invasive pests pose a threat to Rowe's forests. With the vast tracts of highly valued, forested land present in Rowe, outbreaks involving one or more of these could be devastating.

Hemlock woolly adelgid and elongate hemlock scale are both present in Pelham Lake Park and have increased in abundance over the last two to three years. While the 2020 tree inventory for the park's forest stewardship plan did not find hemlock woolly adelgid and elongate hemlock scale, they were

found throughout Pelham Lake Park by 2022. Die-offs due to these species have been reported in other towns in Franklin County.

Beech bark disease is widespread and severe at Pelham Lake Park where beech is a component. The disease is the outcome of an insect-fungus complex, which results when a non-native beech scale insect (*Cryptococcus fagisuga*) feeds on beech bark, creating cracks through which native canker fungi (*Nectria* canker) can enter the tree. More than half of infected beech trees generally die within 10 years of infestation. While beech is projected to persist and do well on a population level under climate change, beech bark disease complicates this story. Furthermore, diseased beech often do not provide the wildlife habitat value traditionally associated with beech since they don't grow large enough to make cavities, or mature enough to make beechnuts. There is the occasional, larger beech in the park forest that seems to have some resistance. At the park and throughout Rowe, larger, resilient beech trees could be protected from any thinning or harvesting activities.

Emerald ash borer was first found in Rowe in 2021. The emerald ash borer is likely to eliminate ashes as major forest trees from Massachusetts in the next few decades. Other invasive threats to forest health that are present in the greater region but not yet in Rowe include the European spongy moth, the Asian longhorn beetle, and sudden oak death disease.

The Town would be wise to take a proactive approach to environmental problems related to the spread of introduced pests, including invasive species, and stay abreast of the latest information about related problems that may impact local vegetation, agriculture, forestry wildlife, and public health, as well as related strategies for sustainable management. Such efforts will require cooperation with state and regional efforts and may involve several boards and departments, including the Open Space and Recreation Committee, the Board of Health, the Parks Department, and the Conservation Commission.

I.8 POLLINATOR INSECT AND HABITAT DECLINE

Natural plant communities rely on pollinators such as bees, wasps, moths, butterflies, and birds to produce genetic diversity in the plants they pollinate and are therefore critical to the biodiversity and resilience of whole ecosystems. In the 2017 *Massachusetts Pollinator Protection Plan*, the Massachusetts Department of Agricultural Resources identified the need to evaluate, sustain, and enhance pollinator populations in the state. Both managed agricultural pollinators and wild native pollinators have declined in numbers in recent decades and are experiencing significant challenges to their survival.⁶² A major research project led by Dr. Robert Gegear out of UMass Boston is collecting and sharing important information about the role of native bees in pollination and the plants and trees that support them.⁶³

⁶² Massachusetts Department of Agricultural Resources *Massachusetts Pollinator Protection Plan*, 2017
<https://www.mass.gov/files/documents/2017/06/zw/pollinator-plan.pdf>

⁶³ Beecology.wpi.edu

The most common and prolific pollinators are bees, of which there are over three hundred species native to New England. Many native bee species are much more effective than honeybees at pollinating flowers, so agricultural growing practices that support native bees also tend to be good for crop pollination, increasing yields, and farm profit.⁶⁴ The widespread use of insecticides on farms, at residences, and in municipal and commercial land management is one of the most significant risks to pollinators. The impact of pesticide use in Rowe on insects is unknown and pesticide use is regulated at the state, not town, level. However, **the safest course of action is to avoid pesticides entirely.**

Another major risk to pollinators is loss of habitat and connectivity between the resources needed to complete their lifecycle. A variety of strategies can be employed to bolster and expand pollinator habitat and develop pollinator pathways (corridors) that can have a measurable impact. In 2021, the Franklin Regional Council of Governments prepared a *Regional Pollinator Action Plan for Franklin County*, the first of its kind in Massachusetts.⁶⁵ The plan documents specific actions towns can take to support pollinator habitats, and provides an implementation toolkit for interested town officials or residents hoping to expand pollinator habitat on their property. The plan contains land use analysis, land management strategies, recommended zoning changes, conceptual designs for various land use types, planting design typologies by land use type, planting lists, and other resources for improving pollinator habitat.

⁶⁴ The Xerces Society, "Farming For Bees: Guidelines for Providing Native Bee Habitat on Farms," 2015: <https://www.xerces.org/publications/guidelines/farming-for-bees>

⁶⁵ FRCOG *Regional Pollinator Action Plan for Franklin County*, 2021: <https://frcog.org/franklin-county-regional-pollinator-plan/>

SECTION 5

INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

A. INTRODUCTION

Previous sections of this plan have identified areas within the town of Rowe that are significant for their ecological, cultural, and scenic value. This information is helpful for understanding the character of Rowe and for outlining issues that may be of particular interest in open space and recreation planning decisions. Lands of conservation interest are those parcels of land that are significant because they are already protected from development or could be a priority for protection. This section reviews the currently available categories and tools for conservation and provides a detailed inventory of those lands so they can be prioritized for either protection, maintenance, and/or improved access.

Open space is generally defined as undeveloped land or land lightly developed for recreation purposes. It may be publicly or privately owned, and may or may not be publicly accessible. In Rowe, open space includes large tracts of forested land, fields and meadows, streams and rivers, wetlands, lakes and ponds, agricultural fields and barns, significant historical structures and landscapes, and recreational facilities. Rowe residents value open space because of what provides: livelihoods, wildlife habitat, important plant communities, protection and recharge of groundwater, access to recreational lands and trail systems, structures and landscapes that represent the community's heritage, and scenic views. Many of these features are vital to climate resilience (see *Section 4*). The abundance of publicly owned and accessible forestland in Rowe is particularly unique.

Rowe also contains an uncommon amount of municipally owned developed open space for a town of its size. Developed open space is outdoor space developed for active recreation such as a park or a recreation facility. Active recreation areas and facilities in Rowe include the Pelham Lake Park beach, tennis courts, playgrounds, a horseback riding ring and a skate park.

This section identifies public and private open space or recreation parcels, ownership, current land use, and the degree of protection. Approximately 24% of Rowe's total land area (3,750 acres) is undeveloped open space with some level of protection from development (see Table 5-1). Land protected in perpetuity (permanently) represents nearly 19% of the town's total acreage. However, the community's long-term open space and climate resilience goals call for ongoing permanent protection of the town's most valued resources, not all of which are currently under protection. Rowe's long-term recreation

goals also necessitate that the Town continues to work for improved access to open space via trails and recreation facilities for a wide variety of users.

A.1 PERMANENT PROTECTION

Land is considered permanently protected when it is under fee ownership by a conservation organization or subject to a legal restriction prohibiting certain acts and uses for the purpose of protecting conservation values present on the land in perpetuity. Permanently protected land enjoys the highest degree of protection from development. In Massachusetts, there are several ways in which land can be considered permanently protected from development:

- A Conservation Restriction (CR) or Agricultural Preservation Restriction (APR) attached to the deed
- Land owned by a state conservation agency, a non-profit conservation organization, or a conservation land trust
- Land protected under Article 97

A Conservation Restriction (CR) is a voluntary, legally binding covenant between a landowner and an organization such as a land trust or state agency in which the owner extinguishes some or all of the development rights of the land forever. The limitations are designed to prevent harm to the features or qualities sought to be protected, while preserving the rights to activities such as farming, forestry, and recreation. The landowners retain the other property rights of ownership and they continue to pay property taxes.

Like non-farmland, farmland can become permanently protected from development when the landowner sells development rights for a parcel to a land trust or state agency. The Massachusetts Department of Agricultural Resources (MDAR) purchases the development rights of farmland in Franklin County regularly through its Agricultural Preservation Restriction (APR) Program. The program offers to pay farmland owners the difference between the "fair market value" and the "agricultural value" of their farms in exchange for a permanent deed restriction that precludes any use of the property that will have a negative impact on its agricultural viability.¹ The APR program requires a local match that can come from any combination of three sources: the municipality, a non-governmental organization such as a land trust, or a bargain sale offered by the landowner.

Article 97 of the Amendments to the Massachusetts State Constitution grants permanent protect to parcels in which any of the following apply:

- Water supply land owned by a municipality or water district containing language in the deed that references water supply protection or Article 97

¹ APR Program: <https://www.mass.gov/service-details/apr-program-objectives-benefits>

- State or Town-owned land containing language in the deed that references use of that land for recreation
- Any mention of Article 97 in the deed
- Town-owned land managed and controlled by its Conservation Commission

Unlike a CR or APR, the protection afforded by Article 97 can be reversed if two-thirds of the state legislature were to vote to change the use of the land. Though this rarely occurs, the state legislature can vote to release this protection at the request of local communities so that conservation land can be used for schools, roads, economic development, or other public projects not related to resource protection.

A.2 TEMPORARY PROTECTION

Parcels enrolled in Massachusetts Chapter 61 Current Use Tax Programs—61 (forestry), 61A (agriculture), and 61B (open space/recreation)—are considered to be temporarily protected from development. These programs offer landowners reduced local property taxes in return for maintaining land in productive forestry, agricultural or recreational use, or in a wild condition for a period of time. These “chapter lands” provide many public benefits, from maintaining wildlife habitat and recreational open space to sustaining rural character and local forest and farm-based economic activity.

A benefit of the Chapter 61 programs is that they offer Town governments the opportunity to protect land. When a landowner proposes to convert parcel that is currently enrolled in one of the Chapter 61 programs to a use that would make it ineligible for the program (such as a development or a sale), the Town is guaranteed a 120-day waiting period during which it can exercise its Right-of-First-Refusal to purchase the property. After signing a Purchase and Sale Agreement, the municipality has ninety days to complete the purchase if it elects to buy the property (or assign the right).

Exercising the Right-of-First-Refusal is difficult, however, unless the Town has an established process for making decisions to and acquiring land. Towns looking to act on their Right-of-First-Refusal benefit from having criteria by which they identify ahead of time priority protection lands. Important characteristics that could motivate the Town to consider acting on its right include the presence of prime farmland soils, pasture, wetlands, aquifer, rare or endangered species habitat, or the parcel’s potential as link between two other segments of protected land or a trail network (see *Section 4* for more details).

A Town is also likely to be more successful in taking advantage of the Right-of-First-Refusal opportunity when partnering with a land trust or state conservation agencies such as the Department of Conservation and Recreation (DCR) or the Division of Fisheries and Wildlife (MassWildlife). These organizations can often fundraise much more quickly than a Town can and don’t have to bring the decision to purchase the land to a Special Town Meeting. The Town can work on these relationships ahead of time so that it is able to assign its Right-of-First-Refusal to the conservation organization as soon as the Select Board receives a property’s notice to withdraw from a Chapter 61 program.

Currently 3% of land in Rowe, or roughly 493 acres, is enrolled in one of the Chapter 61 programs and is considered to have temporary protection from development. Following are details on each program.²

A.2.1 CHAPTER 61 – FORESTRY

The forestry program is intended for landowners interested in long-term, active forest management. Enrollment of forestland under Ch. 61 is based on the landowner's commitment to improving the quality or quantity of timber on the land. Wildlife, aesthetics, recreation, and climate resilient management practices can also be incorporated into property management goals with DCR's Forest Stewardship Program. Program requirements include 10 or more contiguous acres, a state-approved forest management plan developed by a licensed forester or landowner, and periodic forest management as recommended by the forest management plan. Landowners must renew their Ch. 61 enrollment every ten years with the local assessor's office.

A.2.2 CHAPTER 61A – AGRICULTURE

The agricultural program is intended for landowners engaged in agricultural or horticultural use. Enrollment is based on the land's ability to produce the agricultural or horticultural product being grown. There is a five-acre minimum to enroll land in Ch. 61A. Forestland may be enrolled in this program and qualification is based on the land's ability to grow timber. Assessments and program requirements for Ch. 61A forestland are the same as they are in the Ch. 61 program. Landowners must renew their Ch. 61A enrollment annually with the local assessor's office.

A.2.3 CHAPTER 61B – OPEN SPACE AND RECREATION

The open space and recreation program is intended for landowners interested in maintaining the land for public and private recreation purposes, or as open space in a substantially natural, wild, or open condition. Landowners must include at least five contiguous acres of land. Forest management under Ch. 61B is not mandated. However, landowners do have the option of managing their forests if they develop a state-approved forest management plan. Landowners must renew their Ch. 61B enrollment annually with the local assessor's office.

Lands in Chapter 61A and 61 (forestry) are not required to provide public access. Chapter 61B lands in the Natural, Wild, or Open category can post their land to exclude public access; however, Recreation category lands must be open to the public unless the landowner is an organization with paying members.

A.3 LIMITED PROTECTION

Land considered to have limited protection includes any Town-owned open space not under the authority of the Conservation Commission and without reference to recreation or water supply protection in the deed. Without this control or language to trigger Article 97, land can be developed

² More information on Chapter 61 programs can be found on the UMass Extension's MassWoods website: <https://masswoods.org/landowner-programs/chapter-61-current-use-tax-programs>

through a decision by the Select Board or by a Town Meeting vote. Roughly 1% of land in Rowe, or 208 acres, is considered to be under limited protection.

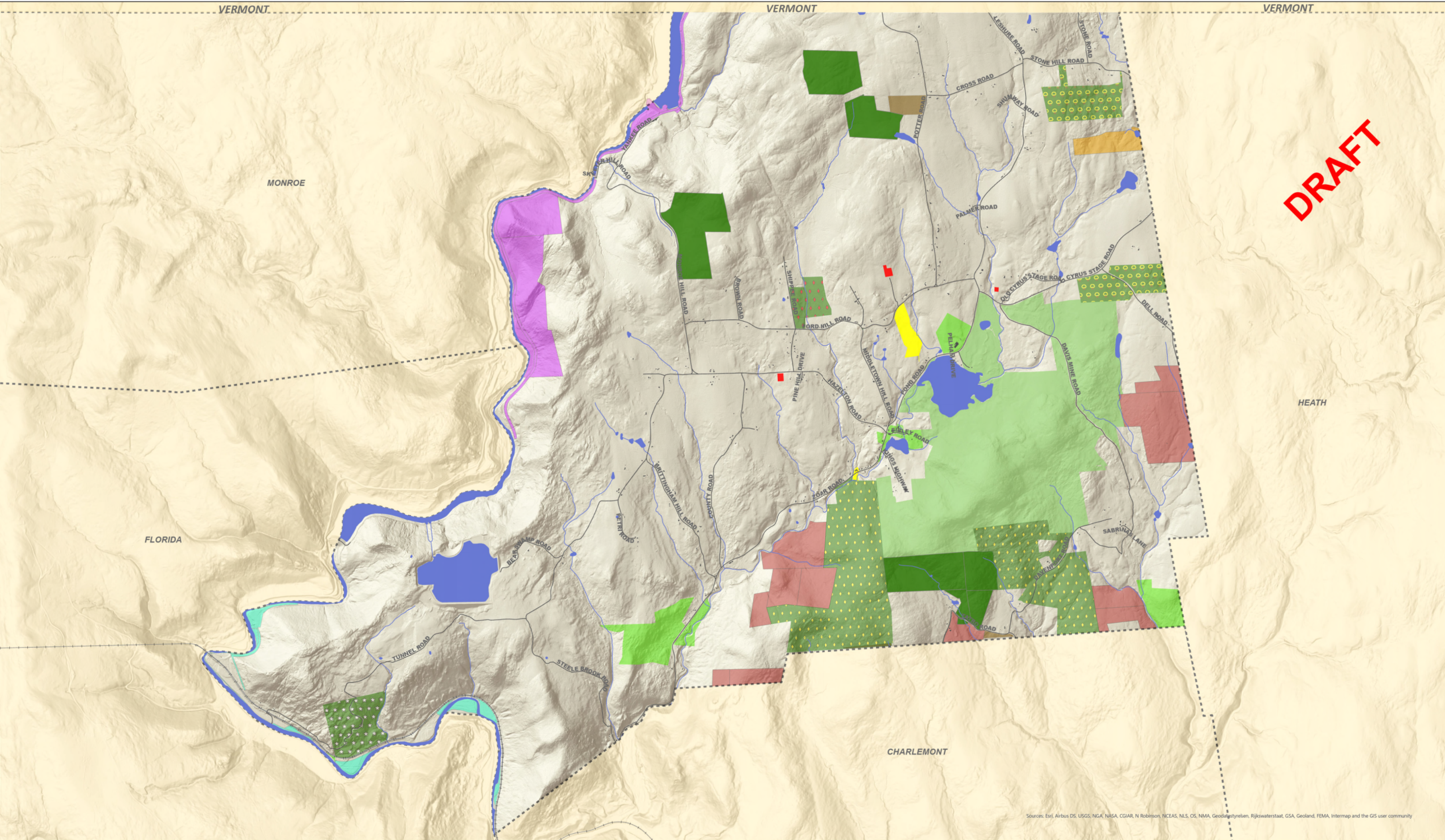
A.4 SUMMARY AND OPEN SPACE MAP

Summary Table 5-1 lists land as under permanent, temporary, or limited protection, and within those categories as private, non-profit, or public. These types of open space are also identified on the *Open Space Map* found at the end of this section. The inventory that follows in Sections B through D lists parcels by ownership type (private, non-profit, or public), and then by level of protection.

The *Open Space Map* shows that there are potential linkages that could be made between existing permanently protected lands for ecological or recreational purposes. The land that forms these potential linkages is likely to be owned by private citizens. Landowners interested in conserving their property can work with the Town, state conservation agencies, land trusts, and other conservation-minded organizations invested in protecting forest and habitat in this region.

Table 5-1: Summary of Protected Open Space in Rowe

Level of Protection	Acres (rounded)	Percent of Land in Rowe (of total 15,705 acres)
Permanently Protected Land		
Publicly Owned		
Commonwealth of Massachusetts	425	2.7%
Pelham Lake Park (Town of Rowe)	1331	8.5%
Public Cemeteries	5	0.0%
Total Publicly Owned	1761	11.2%
Privately Owned		
Conservation Restrictions (CR)	627	4.0%
Agricultural Preservation Restrictions (APR)	46	0.3%
Bear Swamp (CR)	58	0.3%
Great River Hydro (CR)	290	1.7%
Total Privately Owned	1,021	6.5%
Non-Profit Owned		
Franklin Land Trust (FLT)	94	0.6%
New England Forestry Foundation (NEFF)	172	1.1%
Total Non-Profit Owned	266	1.7%
TOTAL PERMANENTLY-PROTECTED LAND	3,049	19.4%
Land Under Limited Protection		
Publicly Owned		
Town of Rowe	208	1.3%
Total Publicly Owned	208	1.3%
TOTAL LAND WITH LIMITED PROTECTION	208	1.3%
Temporarily-Protected Land		
Privately Owned		
Chapter 61	440	2.8%
Chapter 61A	48	0.3%
Chapter 61B	5	0.0%
Total Privately Owned	493	3.1%
TOTAL TEMPORARILY PROTECTED LAND	493	3.1%
TOTAL OPEN SPACE WITH SOME LEVEL OF PROTECTION	3,750	23.9%



Town of Rowe

Open Space & Recreation Plan 2024

Open Space Inventory

- | Permanently Protected | | | Temporary Protection | | | Limited Protection | | | Other Protection | | |
|---------------------------------------|-------------------------|------------------|----------------------|-----------------------------------|------------|--------------------|--|--|------------------|--|--|
| Agricultural Preservation Restriction | New England Forestry | Pelham Lake Park | Forestry (61) | Town Owned (excludes Pelham Park) | Water Body | | | | | | |
| Conservation Restriction | Franklin Land Trust | Cemetery | Agricultural (61A) | Brookfield Renewable | Stream | | | | | | |
| State Owned | Rowe Historical Society | Recreation (61B) | Great River Hydro | Road | | | | | | | |
- Protected Open Space provided by the Town of Rowe Assessors Department

B. PRIVATE PARCELS

Approximately 40%, or 1,515 acres, of protected land in Rowe is privately owned. Public access to private land is not guaranteed and is subject to change. State conservation agencies often require some level of public access before paying for, or accepting, conservation restrictions. However, privately owned protected land may or may not allow public access. There are programs that allow land trusts to purchase temporary or permanent public-access easements for hunting, fishing, wildlife viewing, and hiking from willing landowners so that landowners can supplement their income from their land in exchange for providing a community recreation asset.

In the following tables, privately owned protected parcels are categorized first as agricultural land or forest, then by level of protection from development. The ownership of the land, assessors' map and lot number, and acreage are provided.

B.1 PRIVATELY OWNED FARMLAND

Agricultural lands are valuable as a source of food, as scenery, for livelihoods, and for how they create a sense of place for the community. Some of the agricultural parcels in Rowe may be additionally important because they contain unique values such as stream corridors, prime farmland soils, wetlands, and areas that have been identified as containing key wildlife habitats and plant communities.

B.1.1 PRIVATELY OWNED PERMANENTLY PROTECTED FARMLAND

According to the Town Assessor's records, the only land permanently protected from development through an APR is the Williams APR, 45.6 acres or 0.3% of the town's total acreage (Table 5-2). The zoning of the parcel is Residential-Agricultural.

Table 5-2: Agricultural Land with Permanent Protection from development through an Agricultural Preservation Restriction

Owner(s)	Map/Parcels	Total Protected Acres	Present Holder of Rights
WILLIAMS JAMES H	202 0 059	45.6	Franklin Land Trust
Total		45.6	

Source: Town of Rowe Assessor records, 2023

B.1.2 PRIVATELY OWNED TEMPORARILY PROTECTED AGRICULTURAL LAND

There are approximately 48.3 acres of farmland in the Ch. 61A Program in Rowe (Table 5-3). The degree of protection of these parcels is temporary. The owners do receive an annual tax break. The zoning of the parcels is Residential-Agricultural. Because Chapter programs are term-limited, the following Chapter 61A parcels and acreages represent a snapshot in time and may have changed by the time this OSRP is approved and published.

Table 5-3: Agricultural Land with Temporary Protection from Development through Enrollment in the Chapter 61A Land Classification and Taxation Program

Owners	Map/Parcel	Total Parcel Acres
LOOMIS RUTH E	409 0 008 (partial)	5.3
NEWMAN MURRAY L JR	402 0 072	43.0
Total		48.30

Source: Town of Rowe Assessor records, 2023

B.2 PRIVATELY OWNED FORESTLAND

Forest landowners can impact the forest beyond their property lines through development and management choices. Large blocks of contiguous forest form the basis for sustaining biological diversity in forested regions. Contiguous forestland in Rowe both creates and helps to buffer areas of connected forest habitat that span a large, two-state, multi-town region. The following inventory includes privately owned forestland with different levels of protection from development.

B.2.1 PRIVATELY OWNED PERMANENTLY PROTECTED FORESTLAND

There are approximately 626.2 forested acres (4.0% of town) in Rowe that are privately owned by individuals and permanently protected from development through a CR (see Table 5-4). The zoning for these parcels is Residential-Agricultural. Privately owned, permanently protected forestland in Rowe are conserved under two major CRs on private individual land and CRs on hydroelectric utility (corporate) land.

The Knobloch CR contains 387.2 acres of forested land in southeast Rowe adjacent to Pelham Lake Park and the Maxwell Brook Wildlife Management Area (WMA).³

The vanItallie CR in southeast Rowe, which includes 239.8 acres in Rowe and additional acreage in Charlemont, was protected in 2021 as part of the Warner Hill Landscape Partnership project. The Warner Hill Project protected almost 700 acres of contiguous forest that connected to Pelham Lake Park, the Maxwell Brook WMA, and Knobloch CR—2,000 acres of already protected natural lands. Together, these private CRs and public lands in Rowe and Charlemont create an unbroken block of more than four and a half square miles of permanently conserved wildlife habitat.

³ Multiple Knobloch parcels are also enrolled in the Chapter 61 program.

Table 5-4: Privately Owned Land Permanently Protected from Development by a Conservation Restriction (Individuals)

Owners(s)	CR Name	Map/Parcel	Total Parcel Acres	Present Holder of Rights*
KNOBLOCH KEVIN T	KNOBLOCH*	203 0 006	1.2	NEFF
KNOBLOCH KEVIN T	KNOBLOCH*	205 0 001	129.0	NEFF
KNOBLOCH KEVIN T	KNOBLOCH*	205 0 002	26.0	NEFF
KNOBLOCH KEVIN T	KNOBLOCH*	205 0 009	86.0	NEFF
KNOBLOCH KEVIN T	KNOBLOCH*	410 0 001	1.2	NEFF
KNOBLOCH KEVIN T	KNOBLOCH*	410 0 002	1.6	NEFF
KNOBLOCH KEVIN T	KNOBLOCH*	410 0 003	89.0	NEFF
KNOBLOCH KEVIN T	KNOBLOCH*	410 0 004	10.2	NEFF
KNOBLOCH KEVIN T	KNOBLOCH*	410 0 005	17.0	NEFF
KNOBLOCH KEVIN T	KNOBLOCH*	410 0 006	14.8	NEFF
KNOBLOCH KEVIN T	KNOBLOCH*	410 0 007	11.2	NEFF
VAN ITALLIE JEAN-CLAUDE	VAN ITALLIE	408 0 032	107.0	FLT
VAN ITALLIE JEAN-CLAUDE	VAN ITALLIE	408 0 035	132.8	FLT
Total			626.2	

**These Knobloch parcels are also enrolled in the Section 61 program.

**NEFF = New England Forestry Foundation; FLT = Franklin Land Trust

Source: Town of Rowe Assessor records, 2023

In Rowe, the parcels in Table 5-5 owned by the hydroelectric companies Brookfield Renewable/Bear Swamp⁴ and Great River Hydro are also permanently protected by CRs. These parcels are found in the west side of town and many are along the Deerfield River. A majority of these parcels are zoned Industrial. The former Department of Environmental Management, now DCR, is the CR holder of all of these protected parcels. Permanently protected utility-owned lands total 348.6 acres, or 2% of Rowe's total land area. Bear Swamp parcels account for 58.18 acres, and Great River Hydro parcels account for 290.4 of the total acres.

⁴ Recently, approximately 1,206 acres owned by Bear Swamp came out of the protection of a term-restricted CR that expired with the end of the license in April 2020. These lands are described in part E of this section, Unprotected Lands of Conservation Interest.

Table 5-5: Privately Owned Land Permanently Protected from Development by a Conservation Restriction (Hydroelectric Utilities)

Owner/ Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/ Current Use	Public Access	Recreation Value	Degree of Protection
Brookfield Renewable/ Bear Swamp	411 0 005	OFF TUNNEL ROAD NEAR RR	1.6	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel between railroad and river, no access	Permanent
Brookfield Renewable/ Bear Swamp	411 0 006	OFF TUNNEL ROAD NEAR RR	2.9	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel between railroad and river, no access	Permanent
Brookfield Renewable/ Bear Swamp	411 0 010	OFF TUNNEL ROAD NEAR RR	7.3	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel between railroad and river, no access	Permanent
Brookfield Renewable/ Bear Swamp	411 0 011	OFF TUNNEL ROAD NEAR RR	9.4	Hydroelectric generation downstream river corridor	Yes	Low: Island, no land access, can be accessed via boat	Permanent
Brookfield Renewable/ Bear Swamp	411 0 021	OFF TUNNEL ROAD NEAR RR	11.4	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel between railroad and river, can be accessed via boat	Permanent
Brookfield Renewable/ Bear Swamp	411 0 038	OFF TUNNEL ROAD NEAR RR	1.88	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel between railroad and river, no access	Permanent
Brookfield Renewable/ Bear Swamp	411 0 039	OFF TUNNEL ROAD NEAR RR	1.6	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel between railroad and river, no access	Permanent
Brookfield Renewable/ Bear Swamp	412 0 001	OFF TUNNEL ROAD NEAR RR	1.6	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel between railroad and river, no access	Permanent
Brookfield Renewable/ Bear Swamp	412 0 005	TUNNEL ROAD NEAR RR	2.5	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel between railroad and river, no access	Permanent
Brookfield Renewable/ Bear Swamp	406 0 003	TUNNEL ROAD NEAR RR	18.0 (part of)	Hydroelectric generation	Yes	Low: narrow parcel between	Permanent

DRAFT FOR PUBLIC REVIEW
 ROWE OPEN SPACE AND RECREATION PLAN

Owner/ Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/ Current Use	Public Access	Recreation Value	Degree of Protection
			larger parcel)	downstream river corridor		railroad and river, no access	
Great River Hydro	401 0 001	MONROE BRIDGE RD	0.29	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel along river, limited access	Permanent
Great River Hydro	401 0 002	MONROE BRIDGE RD	32.0	Hydroelectric generation	Yes	Medium: existing trail on old railroad grade for part, full extent of railroad not used as trail	Permanent
Great River Hydro	401 0 006	YANKEE ROAD	13.7	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel along river, limited access	Permanent
Great River Hydro	401 0 007	YANKEE ROAD	3.6	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel along river, limited access	Permanent
Great River Hydro	401 0 008	MONROE BRIDGE RD	14.7	Hydroelectric generation	Yes	Medium: old railroad grade could be used as trail	Permanent
Great River Hydro	401 0 010	YANKEE ROAD	0.47	Hydroelectric generation downstream river corridor	Yes	Low: small parcel	Permanent
Great River Hydro	404 0 022	MONROE BRIDGE RD	0.97	Hydroelectric generation downstream river corridor	Yes	Low: narrow parcel along river, limited access	Permanent
Great River Hydro	405 0 001	MONROE BRIDGE RD	75.0	Hydroelectric generation	Yes	Medium: upland parcel accessible by trail	Permanent
Great River Hydro	405 0 002	MONROE BRIDGE RD	2.8	Hydroelectric generation downstream river corridor	Yes	Medium: narrow parcel along river, accessible by trail	Permanent
Great River Hydro	405 0 003	MONROE BRIDGE RD	3.8	Hydroelectric generation downstream river corridor	Yes	Medium: narrow parcel along river, accessible by trail	Permanent
Great River Hydro	405 0 004	MONROE BRIDGE RD	131.0	Hydroelectric generation	Yes	Medium: upland parcel accessible by trail	Permanent

Owner/ Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/ Current Use	Public Access	Recreation Value	Degree of Protection
Great River Hydro	405 0 005	MONROE BRIDGE RD	12.1	Hydroelectric generation downstream river corridor	Yes	Medium: narrow parcel along river, accessible by trail	Permanent
Total			348.6				

Source: Town of Rowe Assessor records, 2023

B.2.2 PRIVATELY OWNED TEMPORARILY PROTECTED FORESTLAND

Parcels in Rowe enrolled in the Chapter 61 forestland program are primarily forested lands temporarily protected from development. Because Chapter programs are term-limited, the following Chapter 61 and 61B parcels and acreages represent a snapshot in time and may have changed by the time of publication.

Table 5-6 lists parcels in the Ch. 61 forestland program, which total approximately 440.3 acres (2.9% of the total land area of Rowe).⁵ The zoning for these parcels is Residential-Agricultural. Owners do receive a property tax break.

Table 5-6: Forestlands with Temporary Protection from Development through Enrollment in the Chapter 61 Forestland Classification and Taxation Program

Owner(s)	Map/Parcel	Total Parcel Acres
BANNISH LAND PRESERVES, INC	410 0 011	9.1
BANNISH LAND PRESERVES, INC.	410 0 010	26.0
BERSHOF/KRAMER/CLARK	408 0 002	131.0
BERSHOF/KRAMER/CLARK	408 0 058	28.0
LOOMIS RUTH E	409 0 008 (partial)	11.5
SARGENT JOHN H	409 0 003	31.0
SARGENT JOHN H	409 0 002	33.74
SHULDA PHILIP W REVOCABLE TRUS	205 0 008	72.0
SHULDA PHILIP W REVOCABLE TRUS	205 0 010	45.0
SHULDA PHILIP W REVOCABLE TRUS	205 0 011	35.0
SHULDA PHILIP W REVOCABLE TRUS	410 0 008	18.0
TOTAL		440.34

⁵ Some parcels currently enrolled in the Chapter 61 forest land program are also permanently protected and thus are not listed here as receiving protection under Chapter 61. The total acreage enrolled in the Chapter 61 program in Rowe is actually higher than the total listed in Table 5-6.

Source: Town of Rowe Assessor records, 2023

All of the parcels in Table 5-7 are in the Ch. 61B Recreational Open Space Lands Classification and Taxation Program, totaling 4.6 acres.⁶ Owners of Chapter 61B lands in the Natural, Wild, or Open category can post their land to exclude public access; however, Recreation lands must be open to public access unless the landowner is an organization with paying members. The zoning for these parcels is Residential-Agricultural. Owners do receive a property tax break.

Table 5-7: Forestlands with Temporary Protection from Development through Enrollment in the Chapter 61B Recreational Open Space Lands Classification and Taxation Program

Owner(s)	Map/Parcel	Total Parcel Acres
LOOMIS/LAGRASSA/DEMENOCAL	409 0 006	4.2
LOOMIS/LAGRASSA/DEMENOCAL	402 0 017	0.4
TOTAL		4.6

C. PUBLIC PARCELS

Approximately 53%, or 1,969 acres of protected land in Rowe is publicly owned. The Town of Rowe is the largest public landowner in town, with Pelham Lake Park, the Town forests, and other smaller municipal parcels. Most of the state and Town owned land is permanently protected from development by Article 97, but some is considered to have only limited protection from development.

C.1 STATE-OWNED LAND

In Rowe, DCR and MassWildlife each manage lands owned by the Commonwealth. DCR manages the Rowe State Forest. MassWildlife manages the Maxwell Brook WMA. MassWildlife lands allow multiple uses, but do not have established trails or facilities so as to maximize their suitability for hunting and fishing.

Table 5-8 lists permanently protected public parcels of land owned by the Commonwealth of Massachusetts. DCR and MassWildlife manage a total of 425.5 acres or 2.7% of the total land area of Rowe. The zoning of the parcels is Residential-Agricultural.

⁶ Some parcels currently enrolled in the Chapter 61B recreation land program are also permanently protected and thus are not listed here as receiving protection under Chapter 61. The total acreage enrolled in the Chapter 61B program in Rowe is actually higher than the total listed in Table 5-7.

DRAFT FOR PUBLIC REVIEW
 ROWE OPEN SPACE AND RECREATION PLAN

Table 5-8: State-owned Land Permanently Protected

Owner/Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/ Current Use	Condition	Public Access	Recreation Value
DFG	408 0 033	TATRO RD	92.9	Maxwell Brook WMA	Excellent	Yes	High
DFG	409 0 007	TATRO RD	1.8	Maxwell Brook WMA	Excellent	Yes	High
DFG	409 0 011	TATRO RD	10.5	Maxwell Brook WMA	Excellent	Yes	High
DFG	408 0 034	TATRO RD	38.9	Maxwell Brook WMA	Excellent	Yes	High
DFG	409 0 012	TATRO RD	24.0	Maxwell Brook WMA	Excellent	Yes	High
DCR	401 0 024	POTTER RD	77.0	Rowe State Forest	Excellent	Yes	Medium: difficult to access
DCR	401 0 027	POTTER RD	0.1	Rowe State Forest	Excellent	Yes	Medium: difficult to access
DCR	401 0 028	POTTER RD	59.0	Rowe State Forest	Excellent	Yes	Medium: difficult to access
DCR	404 0 023	MONROE HILL RD	121.3	Rowe State Forest	Excellent	Yes	High: readily accessible for hunting via Monroe Hill Road
Total			425.5				

Source: Town of Rowe Assessor records, 2023

C.2 LAND OWNED BY THE TOWN OF ROWE

The Town owns 9.8% of protected land in Rowe, or 1,539 acres, most of which is considered open space, recreation, or historic resources. Some of these parcels with municipal buildings and operations on them are not broadly considered open space, but have conservation value because of their location.

C.2.1 PERMANENTLY PROTECTED TOWN-OWNED LAND

In Rowe, the parcels in Table 5-9 that form Pelham Lake Park (PLP) are considered permanently protected under Article 97 because their deeds contain language stating their purpose for park/recreation or because permanent protection is stipulated (Percy Brown Deed Covenants). Permanently protected Pelham Lake Park land totals 1,331.3 acres, or 8% of Rowe's total land area. Refer to *Section 4* for descriptions of Town-owned recreation sites and facilities.

Table 5-9: Town-Owned Land with Permanent Protection – Pelham Lake Park

Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/Current Use	Public Access	Condition	Recreation Potential	Zoning*	Grants**	Degree of Protection
Park Commission	None	POND ROAD	81.3	Pelham Lake/swimming, fishing, boating	Yes	Excellent	Existing potential met	R-A	None	Permanent
Park Commission	201 0 035	CYRUS STAGE & DAVIS MINE RD	34.0	PLP/forest, trails, hunting	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	201 0 037	CORNER POND RD	13.9	PLP/meadow, forest, riding ring, birdwatching, hunting, and trail	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	201 0 038	POND RD	1.9	PLP/forest, hunting	Yes	Good	Good as is	R-A	None	Permanent
Park Commission	201 0 039	POND RD	39.0	PLP/forest, trail	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	201 0 040	POND RD	20.0	PLP/forest, trails, tennis court, pickleball court, swimming, fishing, picnic area	Yes	Good	Recent improvements; potential to	R-A	WPNM	Permanent

DRAFT FOR PUBLIC REVIEW
 ROWE OPEN SPACE AND RECREATION PLAN

Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/Current Use	Public Access	Condition	Recreation Potential	Zoning*	Grants**	Degree of Protection
							improve beach facilities			
Park Commission	201 0 048	PELHAM DR	0.3	PLP/picnic area	Yes	Good	Potential to improve picnic area	R-A	None	Permanent
Park Commission	204 0 006	POND RD	27.0	PLP/forest, trails, fishing, picnic area	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	204 0 007	POND RD	12.4	PLP/Browning Bench, forest, trails, hunting	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	204 0 023	KINGS HIGHWAY	207.0	PLP/forest, trails	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	204 0 024	POND RD	51.0	PLP/forest, trails	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	204 0 025	POND RD	33.0	PLP/forest, trails, fishing	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	204 0 026	POND RD	30.0	PLP/forest, trails, fishing	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	204 0 027	PELHAM LAKE	19.0	PLP/forest, trails	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	204 0 028	PELHAM LAKE	19.0	PLP/forest, trails	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	204 0 029	PELHAM LAKE	20.0	PLP/forest, trails	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	204 0 030	PELHAM LAKE	23.0	PLP/forest, trails	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	204 0 031	PELHAM LAKE	71.0	PLP/forest, trails	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent

DRAFT FOR PUBLIC REVIEW
 ROWE OPEN SPACE AND RECREATION PLAN

Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/Current Use	Public Access	Condition	Recreation Potential	Zoning*	Grants**	Degree of Protection
Park Commission	204 0 032	KINGS HIGHWAY	13.5	PLP/forest, trails	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	204 0 036	KINGS HIGHWAY	45.0	PLP/forest, trails	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	403 0 069	DAVIS MINE RD	10.0	PLP/forest, trails, hunting	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	403 0 070	DAVIS MINE RD	214.0	PLP/forest, trails, hunting	Yes	Good	Potential to improve trails	R-A	MVP	Permanent
Park Commission	403 0 071	DAVIS MINE RD	11.0	PLP/forest	Yes	Good	Potential for trails, okay to leave undeveloped	R-A	None	Permanent
Park Commission	408 0 038	DAVENPORT RD	144.0	PLP/forest, trails, hunting	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	408 0 045	DAVIS MINE RD	127.0	PLP/forest, trails, hunting	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Park Commission	408 0 046	DAVIS MINE RD	64.0	PLP/forest, trails	Yes	Good	Potential to improve trails	R-A	WPNM	Permanent
Total			1,331.3							

*In the Zoning column, R-A = Residential-Agricultural, I = Industrial

**In the Grants column, TPNM = Trail Partnership of Northwest Massachusetts, MVP = Municipal Vulnerability Preparedness program

Source: Town of Rowe Assessor records, 2023

C.2.2. PERMANENTLY PROTECTED TOWN-OWNED CEMETERIES

Cemeteries in Table 5-10 are considered permanently protected. Rowe has three Town-owned cemetery properties totaling 4.5 acres. They are all found within a few miles of Town Center.

Table 5-10: Town-Owned Land with Permanent Protection: Cemeteries

Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/ Current Use	Public Access	Condition	Grants	Degree of Protection
Cemetery Commission	201 0 025	CYRUS STAGE RD	0.58	East Cemetery	Yes	Good	None	Permanent
Cemetery Commission	202 0 032	HAZELTON RD	0.69	West Cemetery	Yes	Good	None	Permanent
Cemetery Commission	202 0 033	HAZELTON RD	0.84	West Cemetery	Yes	Good	None	Permanent
Cemetery Commission	403 0 001	FORD HILL RD	2.40	North Cemetery	Yes	Good	None	Permanent
Total			4.51					

Source: Town of Rowe Assessor records, 2023

C.2.3 TOWN-OWNED LAND WITH LIMITED PROTECTION

All parcels under the authority of the Select Board or any other jurisdiction other than the Conservation Commission that do not have protective language under Article 97 in their deed are subject to land conversion based on a Town Meeting vote and therefore are considered to have limited protection. While many of these properties are very small and do not have any established trails or recreation amenities, some Town-owned parcels do have recreation value or potential. Town-owned land with limited protection constitutes 207.59 acres (see Table 5-11) or 1.3% of the town's total land area. Refer to *Section 4* for descriptions of Town-owned recreation sites and facilities. All parcels are zoned Residential-Agricultural.

Table 5-11: Town-Owned Land with Limited Protection

Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/ Current Use	Public Access	Condition	Recreation Potential	Conservation Interest	Grants Received	Degree of Protection
Select Board	201 0 010	POND RD	29.78	Rowe Elementary School	Yes	Good	High: existing playground, ballfield, and basketball court; potential for ADA improvements	Adjacent to BioMap Aquatic Core and Rare Species Core	None	Limited
Select Board	202 0 072	FORD HILL RD + MIDDLETOWN HILL RD	0.03	Road triangle	Yes	Good	None	None	None	Limited
Select Board	203 0 002	ZOAR RD	0.23	Land bordering Pelham Brook	Yes	Good	None	BioMap Aquatic Core and flood storage	None	Limited
Select Board	203 0 027	ZOAR RD	1.90	Forested land behind Rowe Library	Yes	Good	Low	Limited: small parcel	None	Limited
Select Board	203 0 028	ZOAR RD	0.16	Rowe Library	Yes	Good	High: existing public garden;	None	None	Limited

DRAFT FOR PUBLIC REVIEW
 ROWE OPEN SPACE AND RECREATION PLAN

Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/ Current Use	Public Access	Condition	Recreation Potential	Conservation Interest	Grants Received	Degree of Protection
							potential for ADA improvements			
Select Board	204 0 009	SIBLEY RD	2.20	Fire Station/ Gracy House	Yes	Good	None	None	None	Limited
Select Board	204 0 010	SIBLEY RD	0.86	Town Highway Garage	Yes	Good	None	None	None	Limited
Select Board	204 0 011	SIBLEY RD	10.20	Soule Property	Yes	Good	Medium: existing trails but also solar zoning district	BioMap Aquatic Core	None	Limited
Select Board	204 0 012	SIBLEY RD	1.70	Town Highway Garage & Skate Park	Yes	Good	High: potential to improve skate park; potential ADA improvements	BioMap Aquatic Core	None	Limited
Select Board	204 0 013	SIBLEY RD	0.22	Town Hall parking lot	Yes	Good	High: potential ADA improvements	None	None	Limited
Select Board	204 0 014	SIBLEY RD	0.05	Town Hall	Yes	Good	None	None	None	Limited
Select Board	204 0 015	ZOAR RD	0.25	Town Hall	Yes	Good	None	None	None	Limited
Select Board	204 0 016	ZOAR RD	0.51	Village Green	Yes	Good	High: potential ADA improvements	Adjacent to BioMap Aquatic Core	None	Limited
Select Board	204 0 017	ZOAR RD	0.46	Village Green & Gazebo	Yes	Good	High: existing gazebo; potential ADA improvements	Adjacent to BioMap Aquatic Core	None	Limited

DRAFT FOR PUBLIC REVIEW
 ROWE OPEN SPACE AND RECREATION PLAN

Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/ Current Use	Public Access	Condition	Recreation Potential	Conservation Interest	Grants Received	Degree of Protection
Select Board	204 0 018	ZOAR RD	0.65	Village Green & Mill Pond Dam	Yes	Good	High: existing picnic area; potential for ADA improvements	Adjacent to BioMap Aquatic Core	None	Limited
Select Board	409 0 001	DAVIS MINE RD	48.00	Rowe Town Forest	Yes	Good	High: potential for parking and trailhead	BioMap Forest Core	None	Limited
Select Board	410 0 014	ZOAR RD	17.00	Refuse Garden/ Transfer Station/landfill	Yes	Good	None	Adjacent to BioMap Aquatic Core and Rare Species Core; flood storage	None	Limited
Select Board	410 0 031	ZOAR RD	93.00	Rowe Town Forest	Yes	Good	High: potential for parking and trailhead	Adjacent to BioMap Aquatic Core	None	Limited
Select Board	411 0 022	DEERFIELD RIVER RD	0.39	Land bordering Deerfield River & railroad	Yes	Good	Low	BioMap Aquatic Core; flood storage	None	Limited
Total			207.59							

Source: Town of Rowe Assessor records, 2023

All municipal park and conservation areas and programs in Rowe are evaluated for accessibility for people with disabilities as part of this plan. The results of this evaluation are included in *Appendix C: ADA Access Self-Evaluation*.

D. NON-PROFIT PARCELS

Approximately 9% of protected land in Rowe is publicly owned.

D.1 NONPROFIT-OWNED PERMANENTLY PROTECTED PARCELS

In Rowe, the parcels permanently protected through land trust ownership total 266.4 acres, or 7.1% of protected land and 1.7% of Rowe's total land area. In 2018, Franklin Land Trust (FLT) acquired the 94-acre Nan Williams Conservation Area, accessible to the public via upper or lower Tunnel Rd.⁷ The property is very scenic and is home to important plant and wildlife habitat. The New England Forestry Foundation (NEFF) owns two publicly accessible properties, the Carey Memorial Woodland and the Harriet Carpenter Read Memorial Forest, which are actively managed for habitat and silviculture.

Table 5-12 shows permanently protected non-profit land. Parcels are zoned Residential-Agricultural.

Table 5-12: Permanently Protected Non-Profit Land

Owner/ Manager	Map/ Parcel	Location	Total Parcel Acres	Site Name/ Current Use	Public Access	Recreation Value	Degree of Protection
FLT*	411 0 019	TUNNEL RD	57.0	Nan Williams Conservation Area/habitat, trails	Yes	Medium: steep; well defined woods roads	Permanent
FLT*	411 0 034	TUNNEL RD	37.0	Nan Williams Conservation Area/habitat, trails	Yes	Medium: steep; well defined woods roads	Permanent
NEFF	402 0 054	STONE HILL RD	85.0	Carey Memorial Woodland/forestry, habitat	Yes	Low: active forestry; no trails	Permanent
NEFF	402 0 055	STONE HILL RD	0.5	Carey Memorial Woodland/forestry, habitat	Yes	Low: active forestry; no trails	Permanent
NEFF	402 0 061	STONE HILL RD	4.9	Carey Memorial Woodland/forestry, habitat	Yes	Low: active forestry; no trails	Permanent
NEFF	403 0 053	DELL RD	41.0	Harriet Carpenter Read Memorial Forest/forestry, habitat	Yes	Low: active forestry; no trails	Permanent
NEFF	403 0 063	DELL RD	41.0	Harriet Carpenter Read Memorial Forest/forestry, habitat	Yes	Low: active forestry; no trails	Permanent
Total			266.4				

*These Franklin Land Trust parcels are also enrolled in the Section 61B program.

⁷ These two Franklin Land Trust parcels are also enrolled in the Chapter 61B program.

E. UNPROTECTED LANDS OF CONSERVATION INTEREST

A number of private utility and nonprofit land holdings in Rowe are used for recreation or conservation purposes but are considered to have no legal protection from development. These lands are not included in the total acreage count of lands under some form of protection. The following are properties in Rowe with recreation or open space value that could be good candidates for further protection.

Formerly Conserved Bear Swamp Parcels

According to the Bear Swamp Power Company's 2022 Water Quality Certification portion of its current FERC license application, there were 1,206 acres owned by Bear Swamp formerly in CR whose CR expired with the former license on April 1, 2020.⁸ Most of this acreage recently coming out of conservation is the 858-acre 406 0 003 parcel, which encircles the Upper Reservoir. 18 acres formerly The Town is interested in the company placing these acres under permanent protection because of the high climate resilience value (Mass Audubon), ecological integrity score (UMASS CAPS), and the presence of NHESP Priority Habitats of Rare Species in this relatively intact forest in the southwest part of town (see *Section 4*). As of writing, it is understood that these parcels will not be placed back under protection when the new license reaches final approval.

Fort Pelham

The Rowe Historical Society, a private entity, owns the Fort Pelham historic site. There are no remnants of the original structure. Although the historic site is owned by the Historical Society for the purpose of preservation, it is under no legal protection from development.

Mount Tom-Mount Adams Range

The Mount Tom-Mount Adams range shows the largest area of high ecological integrity (UMASS CAPS, see *Section 4*) in Rowe. The Park Commission would be interested in acquiring additional lands as they become available to expand the park's boundaries, giving priority to areas with high ecological value (using ecological mapping tools described in *Section 4*).

Negus Mountain

Negus Mountain is owned by New England Power Company and is a popular hiking destination. This parcel includes BioMap Core Habitat, NHESP Priority Habitats of Rare Species, and is home to two NHESP Natural (plant) Communities.

Yankee Atomic Lands

Yankee Atomic owns over 1,700 acres of land in northwest Rowe that are not required for the Independent Spent Fuel Storage Installation (dry fuel storage facility). The Town is interested in the protection of this area as well for its high climate resilience value, ecological integrity, and the presence of NHESP Priority Habitats of Rare Species.

Opportunities for funding open space recreation and conservation projects are detailed in *Appendix B*.

⁸ Bear Swamp Power Company 2022; contact the Town Assessor for parcel numbers.

F. RECREATIONAL RESOURCES AND OPEN SPACE EQUITY

One dimension of environmental equity is the distribution of open space. This is somewhat difficult to evaluate in a town like Rowe, where residences are spread out along the rural roads in town. Rowe's public recreation areas are predominantly located at Pelham Lake Park, near the center of town. While there are publicly accessible lands in other parts of town, these locations are not, with the exception of parts of Bear Swamp and NEFF properties with trails, easy to access with parking and trails. Many people also walk on private property in their neighborhoods, with permission. The majority of residents own cars and can drive to reach open space and recreation resources. With long distances and no pedestrian accommodations along roads, access to open space is much more difficult for those who do not drive.

G. CRITERIA FOR OPEN SPACE PROTECTION

As part of a blueprint for conserving open space and recreation land in Rowe, developing criteria to identify and prioritize land for conservation (as well as for development) could help focus Rowe's conservation efforts and better prepare Rowe to make decisions about land coming out of Chapter 61 for which the Town can exercise its Right-of-First-Refusal. A systematic approach, including applying criteria, would enable Rowe to be strategic in its allocation of program funds by giving the Town a tool both to proactively identify parcels and resources that meet the goals of the open space plan, and to analyze the merits of individual parcels of land and projects as they present themselves.

Criteria for rating open space are unique to a community. The process described below, derived from work developed and generously shared by the Town of Warwick, is presented as a stepping off point for Rowe's Open Space Committee to use and modify to suit Rowe's unique resources.

G.1 DEVELOPING CRITERIA

The criteria developed for calculating the conservation value of a parcel in Rowe should have strong consideration toward its ecological function. Parcels with ecological value, such as important hydrology, unfragmented forest, significant species or habitats, or potential to act as a critical linkage, can be identified and prioritized using the ecological identification and prioritization mapping tools described in *Documenting and Mapping Biodiversity and Ecosystems* in Section 4. However, statewide ecological mapping tools do not capture the recreational, scenic, and historical/cultural significance of a place to the people who live there. Consideration of additional, non-ecological values provide a holistic assessment of which parcels have the most value on the whole to the community.

ECOLOGICAL ASSESSMENT

See *Documenting and Mapping Biodiversity and Ecosystems* for use of ecological assessment tools.

RECREATION RESOURCES

COMMUNITY SETTING DRAFT FOR REVIEW ONLY

ROWE OPEN SPACE AND RECREATION PLAN

- a) Trail Corridors: Land that would contribute to the creation of a comprehensive trail network, including parcels that form linkages with an existing or planned trail system.
- b) Scenic Views: Land that preserves the viewshed of outstanding views.
- c) Water Resources: Land that would provide access to Pelham Lake or the Deerfield River or other waters for swimming, canoe and kayak put-ins, and fishing.

SCENIC RESOURCES

- a) Views across Fields: Roadside views across fields are an important scenic amenity in Rowe; their scenic value reinforces the importance of protecting agricultural fields adjacent to roadsides.
- b) Views of Ridgelines: Rowe has some undeveloped ridgelines that are an important part of the Town's rural scenery. Maintaining undeveloped ridgelines benefits both the scenic value of the town and the quality of the wildlife habitat. Maintaining undeveloped ridgelines could potentially become more challenging if the market for new homes strengthens.

HISTORIC AND CULTURAL RESOURCES

- a) Historic Landscapes: Historic landscapes and certain areas of town that wish to remain undiluted by incongruously modern construction to preserve the town's historic heritage.
- b) Historic Farmsteads: Where original farmhouses, barns and outbuildings, stone walls, and fields remain intact, each may be an historic artifact considered for inventory and preservation.

The open space criteria categories can be used as a scorecard. Parcels receiving the highest scores would represent projects of such high value that the Town may want to raise funds in order to accomplish them, whereas with lower priority projects, the Town might not be willing to expend funds but would consider accepting the gift of a conservation restriction or trail easement if it were donated by the landowner.

Open space protection can move forward only when a landowner is interested in conserving their land and when funding is available to pay full market value when critical parcels come on the open market. In this scenario, it is the availability of opportunities that will control which projects are undertaken. If concerns about keeping land on the tax rolls ever arise in Rowe, a compatible form of open space protection can be the purchase of conservation restrictions or trail easements (in which private landowners agree to allow the public use of a trail that passes through their land). In this way, the land itself remains in private ownership and stays on the tax rolls. An open space and recreation budget stretches further when it is possible to purchase just a restriction or trail easement, rather than having to pay for the entire parcel.

SECTION 6

COMMUNITY VISION

A. DESCRIPTION OF PROCESS

The Town of Rowe's open space and recreation goals were developed by the Open Space and Recreation Committee and were reaffirmed through a public outreach and planning process that included the following:

- In the fall of 2022, an open space and recreation survey developed by the Rowe Open Space and Recreation Committee was posted to the Town website and in a GIS StoryMap webpage created for the plan. It was advertised in the community's Goal Post newsletter, on two of the Town's Facebook sites, via the Town's reverse 911 emergency communication system, and via a postcard mailed to every household in town. Additional copies of the survey were made available at the Library and Town Hall. The Committee received **61 responses** to the survey. With approximately 254 households, this represented about 24% of households in Rowe.
- A StoryMap titled "A Climate Resilient Open Space and Recreation Plan for Rowe" was created for the plan in September 2022, prior to the release of the survey, that will remain online after the completion of the Open Space and Recreation Plan (OSRP) planning process. Draft final chapters of the plan were posted to the StoryMap as they were available.
- From March 2022 to [MONTH] 2024, the Rowe Open Space and Recreation Committee developed the Open Space and Recreation Plan using several methods for involving public participation:
 - The Open Space and Recreation Survey results were used to support the development of Section 8 Goals and Objectives as well as the overall open space and recreation goals and vision.
 - [NUMBER] meetings were held by the Open Space and Recreation Committee and were posted and open to the public.
 - Drafts of plan sections were sent by the Open Space and Recreation Committee to Town boards and community groups considered stakeholders in the plan (see Responsible Board/Group column in the *Section 9* seven-year action table).
 - A public forum was held on November 1, 2023 where residents reviewed and discussed the inventory, analysis, community goals, objectives, and seven-year action plan. A two-week public comment period followed the public forum that closed the December 1, 2023. All public comments were recorded and incorporated into the plan, as appropriate (see *Section 10*).

B. STATEMENT OF OPEN SPACE AND RECREATION GOALS

Rowe residents who responded to the Open Space and Recreation Survey and participated in the process of developing this plan have a vision for the future of Rowe's natural, scenic, recreational, and historical resources.

Protect the Town's Ecosystem Services, Biodiversity, Climate Resilience, and Ecologically Vulnerable Areas

Rowe is rich in intact forest and healthy ecosystems that are critical to local and regional ecosystem services, biodiversity, and climate resilience. Large tracts of land are managed by the Town of Rowe and a number of state and non-profit conservation organizations. These lands will be stewarded using a mix of climate-smart stewardship practices to increase land resilience and to serve as educational models for land managers in the community and beyond.

Make Rowe's Open Space and Recreation Opportunities Available to All Ages and Abilities

Rowe residents appreciate the opportunity to walk, hike, and bike near their home. Pelham Lake Park is the crown jewel of Rowe's recreation areas, providing both passive and active recreation opportunities.¹ These outdoor spaces should be able to be enjoyed by all, including aging residents who want to continue to be active. The Park is an important place to continue building facilities and trails for people of all ages and abilities. Publicly accessible recreation areas outside of the Park are also opportunities to develop parking, trails, and other improvements to increase accessibility.

Improve Public Awareness of Open Space and Recreation Opportunities

Rowe residents recognize that the accessibility of open space and recreation is also a function of people's awareness of and access to information about open space. Making detailed recreation information available to the public both online and at trails, trailheads, and parking lots helps make them accessible to all.

Maintain Rowe's Rural Character and Sense of Place

Residents love the peace and quiet, air and water quality, forests, and small-town character they find in Rowe. They value maintaining this rural character in the face of changes, including potential development. The preserved historical features, development patterns, and open space that give Rowe its rural character are essential to preserving Rowe's sense of place in the future.

Work with the Community and Regional Partners to Improve Awareness, Literacy and Planning of Open Space, Recreation, the Environment, and Climate Resilience

¹ Passive recreation is non-motorized activity in relatively undeveloped places, such as hiking or biking trails. Active recreation is motorized or non-motorized activity in developed places, such as ball fields, playgrounds, or dirt bike tracks.

Rowe is a close-knit community that values the next generation and is committed to working together as a community to share relevant information and forward-thinking management practices with town residents, as well as to work with neighboring communities to support regional, landscape-scale conservation and recreation projects.

DRAFT

SECTION 7

ANALYSIS OF NEEDS

The Rowe Open Space and Recreation Plan incorporates an inventory of land-based natural, historic, scenic, and recreational resources in town (*Section 4*), identifies the areas that contain these resources (*Section 5*), and based on the community's general goals (*Section 6*), makes comparisons between what exists and what is needed or desired (this section, *Section 7*). It contains the following subsections:

- A. Summary of Natural Resource Protection Needs**, highlighting the most important environmental issues.
- B. Summary of Community's Needs**, discussing the most important needs of residents.
- C. Management Needs**, addressing the obstacles to the effective resolution of these needs.

As the climate crisis continues to unfold, the present and potential impacts of climate change on the environment, people, and the local economy are coming into focus in small communities. The update to the Hazard Mitigation Plan (HMP) in 2016, preparation of the Municipal Vulnerability Preparedness (MVP) Plan in 2021, and the 2022 update to the community-based Pelham Lake Park Forest Stewardship Climate Plan planning process helped raise awareness and bring the community together to talk about climate change and its effects in Rowe. As detailed in *Section 4*, while natural systems play an important role in mitigating and adapting to future climate change, they are highly vulnerable to its impacts. Local decisions about how land is used and ecosystems are managed will profoundly affect how Rowe adapts to the challenges of climate change. Opportunities to bolster mitigation and promote resilience are described throughout this section.

A. SUMMARY OF NATURAL RESOURCE PROTECTION NEEDS

The previous sections of this Open Space and Recreation Plan examined the variety of natural and cultural resources that give Rowe its distinctive rural character. Public input, in the form of results from the 2022 Rowe Open Space and Recreation Survey and comments from Rowe Open Space and Recreation Committee members, provided a basis for discussion as to what is priority to residents. The following section outlines key natural resource protection needs.

A.1 FORESTS

Rowe is dominated by forests that are relatively intact and free of invasive plants, pathogens, and insect pests, but these invasives are becoming more and more present. And, like most forests across western Massachusetts, the forests of Rowe are mostly composed of trees around the same age, making them more prone to mass die-off should they be impacted by stressors like pests or climate change. Regeneration of young, diverse tree species to help diversify age composition is often hindered by deer browse.

For Pelham Lake Park, efforts to **keep the forest healthy and diversified for climate resilience** can be guided by the community-driven *2022 – 2023 Pelham Lake Park Forest Stewardship Climate Plan*. Forest health, such as the impact of invasive tree pests on hemlock groves, are monitored in the park, and climate resilience is promoted through climate-smart stewardship practices such as assisted migration of more heat adapted tree species. These new forest stewardship demonstration plots and other education projects set in Rowe, such as the Forest Climate Resilience Program’s Virtual Forest Center (funded through MVP), are unique and easy opportunities for Rowe residents to learn best practices for climate resilient forest management to apply across Rowe in both actively managed working forests and passively managed forest preserves.¹

Rowe’s forests are also unique in that they are central to a network of large blocks of contiguous forest in northwest Massachusetts and southwest Vermont. The existence of this forest network provides innumerable ecosystems services for people and benefits for wildlife and plant communities. **Keeping this network of contiguous forest intact is an indispensable climate resilience strategy** because intact forests are better at localized climate regulation, maintaining habitat function, watershed protection, are more resistant to invasive plants, pests, and pathogens, and are more resilient to fire. While there is still value to protecting rare and endangered plant and wildlife species, land conservation efforts are increasingly focused on preserving larger, intact ecosystems that protect whole suites of species, some of which may be common now but could become endangered in the future. Ecological mapping (see *Section 4*) for Rowe shows areas of contiguous forest and their habitat value under various criteria that should be considered for further protection.

Pelham Lake Park and the undeveloped land around it is perhaps the most important of these large blocks of contiguous forest in Rowe. The Town is interested in continuing to grow the footprint of the park to protect valued forest, wetlands and wildlife habitat, and to connect to other permanently

¹ The Forest Climate Resilience Program provides education, technical assistance, and supports the adoption of climate-smart forest stewardship to help landowners understand, plan for, and implement wildlife and climate friendly practices that help forests cope with climate extremes (adaptation) while also locking away greenhouse gases that cause climate change (mitigation). It is a partnership between Mass Audubon, the Woodland Partnership of Northwest Massachusetts, Ohketeau Cultural Center, Mass Woodlands Institute, Franklin Land Trust, The Nature Conservancy, the Northern Institute of Applied Climate Science, and the New England Forestry Foundation.

protected land in the southeast corner of Rowe. Survey results indicate that the community generally supports the Town continuing to acquire land for conservation, with 88% of respondents supporting the acceptance of land donated to the Town for conservation.

Other strategies for land protection include permanent conservation restrictions placed on private land, acquisition of land by a land trust or state conservation agency, and temporary protection through enrollment in the Chapter 61 current use tax program. Each of the above options had support from at least 55% of survey respondents, with temporary protection through Chapter 61 the most favored option. Alongside land protection, Smart Growth-oriented **land use policies that promote the development of underused or vacant land in areas that are already relatively built up and efficient use of green space for new development** can help curb fragmentation of open space from development.² Sixty-five percent of survey respondents support zoning changes to protect open space.

A.2 HABITAT

Rowe's substantial tracts of uninterrupted forestland and other habitats are essential for wildlife that are sensitive to human activities and edge predators, range widely and occur at low densities, or require large tracts of interior forest for breeding. *Section 4* describes how wetlands, vernal pools, rivers and streams areas are also very important wildlife habitats to the majority of wildlife species and open areas such as meadows and scrub-shrub habitat are very important to pollinators. Survey respondents selected wildlife habitat (80%) and rivers/streams/lakes/ponds/wetlands (75%) as their top two most important natural or scenic resources to conserve in Rowe. Overall, continuing to **prioritize protection of important wildlife habitat areas and the links between them** is the most effective action to protect wildlife and facilitate their adaptation to climate change.

Among these very important habitats to protect are the Deerfield River and the brooks and streams in Rowe, which are almost all coldwater fisheries. Coldwater fisheries, where many of our native fish reproduce, are particularly vulnerable to warming temperatures and changing precipitation patterns due to climate change. **Tree cover in riparian areas is particularly important for regulating water temperatures.** In the Deerfield in particular, maintaining minimum flow volumes to protect native fish egg nests is important for fish populations and diversity.

Rowe is unique in the region in that it is home to old mining shafts used by multiple species of bats. Most bat species have suffered steep population decline due to the spread of White Nose Syndrome. **Isolated mineshafts like those in Rowe provide protected hibernacula to bats which reduces stress, making them less susceptible to infection, and prevents spread of the disease by humans.**

Rare plant communities in Rowe have been identified along the Deerfield River and on uplands directly adjacent to the river. While NHESP-identified rare plant communities in the lowlands are often

² To learn more about Smart Growth, see the Massachusetts Executive Office of Energy and Environmental Affairs' Smart Growth/Smart Energy Toolkit at http://www.mass.gov/envir/smart_growth_toolkit/.

protected in perpetuity, the acidic rocky summit/rock outcrop and the rich, mesic forest plots in the upland are largely unprotected. Conserving and managing these areas will help protect these plant communities from stressors such as invasive species.

A.3 WATER

When asked which efforts would be highest priority for permanently protecting undeveloped land in support of climate resiliency, **survey takers prioritized protecting water resources**: protecting water quality (57%), protecting riparian areas to provide storage for floodwaters (53%), and protecting water supply (52%). Drinking water quality and supply was also a top five priority when asked generally about priorities for conserving natural and scenic resources (48%). The location, extent, and productivity of unconsolidated and bedrock aquifers that provide drinking water to town residents and municipal buildings is not known. Protecting areas along rivers, streams, lakes, ponds, and wetlands to provide storage for floodwaters and increase flood resilience has many co-benefits for habitat and water quality. Drinking water quality may be an issue of heightened concern if development in Rowe intensifies given that there are areas possibly more prone to groundwater contamination (see Section 4). Concerns about groundwater quality could be studied alongside supply.

B. SUMMARY OF COMMUNITY NEEDS

Over the next seven years, Town boards, committees, and commissions can work collaboratively to address the key community needs with a focus on having age and ability-friendly recreation opportunities across town that everyone knows are there.

In 2017, the Commonwealth completed the Massachusetts Statewide Comprehensive Outdoor Recreation Plan (SCORP), an update of the SCORP 2012 five-year plan.³ SCORPs are developed by individual states to be eligible for federal Land and Water Conservation Fund (LWCF) grants and serve as a tool for states to use in planning for future needs and uses of outdoor resources for public recreation and relaxation. A survey of Massachusetts residents was conducted to assess their desires and needs for outdoor recreation as part of the 2017 SCORP update. Informed by the survey and review of municipal open space and recreation plans, the SCORP identified the top four outdoor recreation goals for the state as:

- Access for underserved populations
- Support of the statewide trails initiative: community-wide trail systems, hiking trails, and multi-use trails
- Increased availability of water-based recreation
- Support of the creation and renovation of neighborhood parks

³ A 2022 Massachusetts SCORP is forthcoming.

Pelham Lake Park—which is used by 98% of survey takers and represents the majority of recreation opportunities in Rowe—provides Rowe residents with free trails, water-based recreation, and a robust array of park amenities, meeting several of the top SCORP goals and many needs of the community. Responses from the 2022 Open Space and Recreation Survey indicated a need to make these and other recreation opportunities in Rowe more accessible to a range of abilities.

B.1 TRAILS

Two of the top four recreational activities that survey respondent households want to do more of in Rowe are use trails for walking, hiking, and trail running (87%), snowshoeing (58%), and cross-country skiing (57%). It is not surprising then that Pelham Lake Park trails and trails on private land are the first and third most popular outdoor recreation areas in Rowe. When asked in the survey to select the most important natural and scenic resources to conserve in Rowe, publicly accessible trails was the fourth most popular. Survey respondents expressed a strong desire for more and improved trails for a variety of purposes:

Existing Hiking Trails

- Better marked and signed trails
- ADA-accessible trails
- More trail and bridge maintenance
- Better trail maps and publicity of trail locations
- Better parking

Mountain/Woods Biking

- Better management of trails to reduce erosion from bikes
- An easy woods bike trail
- Maps with trails, trail difficulty, and parking
- Signage at parking

Additional hiking trails

- More connectivity between public access parcels
- More public access trails on private property

Many of these suggestions are projects already underway at Pelham Lake Park (see description of previous accomplishments in *Section 9*). Those that are not are addressed in the seven-year action plan (*Section 9*).

B.2 ADDITIONAL PASSIVE AND ACTIVE RECREATION

Swimming was the second most popular activity, with 63% of respondents wanting to do more of it in Rowe; however, respondents did not specify needed improvements beyond desires for reduced motor

boat activity on the lake and removing lake vegetation. Other outdoor activities desired by Rowe residents (after swimming and trail-based activities) were picnicking, bird watching, foraging, and fishing. The survey asked about needs for boating and cycling recreation, for which the following specific needs were identified:

Bird and Wildlife Viewing

- Accessible boardwalks and trails to wetlands and meadows

Boating

- Better boat launch at Pelham Lake
- Remove lake vegetation at Pelham Lake
- More public boat-borrowing options for a variety of abilities at Pelham Lake

Cycling

- Mark bike lanes on roads
- Improve road conditions for biking

Fishing & Hunting

- Improve ADA access for fishing at Pelham Lake
- Signage for where hunting, fishing, and foraging can occur at Pelham Lake
- Increase the number of places people can do these activities

Picnicking & Outdoor Gathering

- More barbeque areas at Pelham Lake Park
- Bigger pavilion at Pelham Lake Park
- More lighting at Pelham Lake Park

Pelham Lake Park is also home to tennis courts, two of which were recently resurfaced and painted to include three pickle ball courts. There are currently no plans to upgrade the riding ring or old basketball court. The skateboard park will need resurfacing in the future.

Although the Park's deed does not allow it, there was a general openness among survey respondents to Pelham Lake Park and its facilities being open to residents of other towns, with some controls in place to prevent crowding or overuse.

B.4 PROGRAMMING

Survey respondents expressed an interest in nature education, history, and group exercise, specifically: plant and mushroom identification walks (48%), group hikes and bike rides (30%), historical walks (30%), bird walks (26%), and wildlife tracking (26%). Timing/scheduling and physical/health were cited as the major reasons keeping survey respondents from attending programs, so providing programs at a variety

of times and with accessibility accommodations may be important for engaging more people in outdoor programming.

Rowe staff and community members already offer a lot of programming. Staff at Pelham Lake Park offer a summer recreation program for children 5-12 years and year-round nature-based programs. Other entities, such as the Historical Society and the library, also offer a diversity of programs. Of the outdoor-oriented events, passive environmental education, naturalist skill development, and leisurely walks tend to be the most popular. Programming that is kid-friendly also helps bring adult participation in Town-sponsored programs. The town would like to continue to attract more and new people by offering programs that are interesting and feel accessible to a wide range of residents, including Rowe's aging population. Making more wheelchair and low-mobility-accessible trails may also help with this goal.

B.5 ACCESSIBILITY

Around **one third of survey takers did not know about a number of publicly accessible outdoor areas in Rowe**, including the Warner Hill Trail at Shantigar, the Nan Williams Conservation Area, the Harriet Carpenter Read Memorial Forest, or the Carey Memorial Woodland. Maps, descriptions, and guidelines for use of recreation areas are important for making sure open space assets can be enjoyed by all. Installing additional signage and wayfinding that includes distances and trail conditions would also help users feel comfortable using the trails, but first they must know that the trails exist.

Many survey respondents identified the need for more trails, boating options, and fishing access points that are accessible and welcoming to people with limited mobility. The Town's ADA self-assessment found that most of the Town's recreation or picnicking sites lack picnic tables that a wheelchair can fit under as well as smooth, stable pathways between parking and seating. Many sites lacked designated ADA parking spaces. The bathrooms at Pelham Lake Park and the Mill Pond Gazebo lacked a wheelchair ramp. There are no ADA accessible trails in Pelham Lake Park, and though the Park just installed a massive boardwalk along the Lakeview Trail that has made that area easier to walk on, it is not wheelchair accessible.

B.6 RURAL, SMALL-TOWN CHARACTER

Rowe is a very small, remote town with a distinctly rural feel by virtue of its low-density development, small village center, abundant forest, open fields and meadows, dirt roads, and agricultural remnants such as barns and stone walls. When asked why they live or spend time in Rowe, at least half of survey respondents cited qualities associated with Rowe's rural nature: peace and quiet, large forested areas, air and water quality, and historic New England small-town character. **Rural character ranked as the third most important resource to conserve among survey respondents.** Being a long drive from basic amenities and with population numbers slowly on the rebound since the mid-1900s after a century of decline, Rowe has not been under the kind of development pressure that typically drives a town to revise their land use regulations in order to preserve their existing landscape character. Yet, if development pressure were to change over the next decade or several decades, due to climate

migration or other unknown factors, Rowe may want to review its zoning to ensure that it is **directing new development in ways that preserves town character and ensure the natural environment is climate resilient**, as described in part A of this section. This could require modifying zoning bylaws to encourage new development to be compact and close to existing development and discourage it from occurring deep in intact forest.

Rowe has not adopted the Community Preservation Act (CPA). The CPA allows communities to create a local Community Preservation Fund to raise money through a surcharge of up to 3% of the real estate tax levy on real property for open space protection, recreation, historic preservation, and the provision of affordable housing, which is then matched through a state CPA fund.

C. SUMMARY OF MANAGEMENT NEEDS

This section addresses opportunities improving in the ways open space and recreation areas are managed and maintained in Rowe. Rowe is blessed to have staff and volunteers managing upkeep, projects, and programs at Pelham Lake Park. Although volunteer work has the positive effect of energizing residents toward a common cause and making needed improvements to the Town's systems, infrastructure, and landscape, it can be difficult to sustain a volunteer base for committee and project work in such a small town. For the Rowe Open Space and Recreation Plan to reach its full potential, a fully populated standing Open Space and Recreation Committee would be needed to steward the priority actions to completion.

Rowe boards and committees have a strong culture of communication and cooperation. It is imperative that this level of coordination be maintained on the many intersecting topics important to the environment, open space, recreation, and their climate resilience: **a) Pelham Lake Park forest and recreation assets, b) the protection of open space and recreation assets across town, c) water quality and quantity, and d) scenic and cultural resources important to the town.**

For existing recreation resources to meet the needs of Rowe residents, there is **a need for clear and broad availability of information on recreation opportunities, environmental conservation, and climate resiliency practices**, such as on forest stewardship and other forms of land management, land conservation, and grant opportunities, among other topics. These informational resources should be available both digitally and in print.

SECTION 8

GOALS AND OBJECTIVES

The following goals and objectives were formulated from the results of the 2022 Rowe Open Space and Recreation Survey and meetings of the Open Space and Recreation Committee. These goals and objectives will be pursued and implemented within the context of increasing and strengthening Rowe's resiliency to climate change.

A. PROTECT ROWE'S ECOSYSTEM INTEGRITY AND ECOSYSTEM SERVICES

A.1 Prioritize the protection of lands that contain and support the function of valuable and sensitive ecological systems, ecosystems services, recreation, and climate resilience.

A.2 Manage open space and ecosystems for their many benefits, including biodiversity, habitat, stormwater management, climate resilience, and carbon sequestration.

A.3 Protect high quality waters and the availability and quality of drinking water resources by managing stormwater and by protecting or preserving wetlands, cold water fisheries, floodplains, the river corridor, and riparian buffers.

A.4 Minimize flood damage by managing stormwater and by protecting or preserving wetlands, cold water fisheries, floodplains, the river corridor, and riparian buffers.

A.5 Use land use regulations to increase protection of valued natural and cultural resources, and to support climate change mitigation and adaptation strategies.

B. ENHANCE RECREATIONAL AND CULTURAL OPPORTUNITIES IN ROWE

B.1 Steward Pelham Lake Park to keep it functioning as a beloved community resource.

B.2 Expand the recreation options across town.

B.3 Protect and improve the accessibility of recreational and cultural opportunities in Rowe for all ages and abilities.

B.4 Protect cultural and historic resources.

C. Create the organizational and educational framework for achieving the goals of the open space and recreation plan

C.1 Develop a coordinated approach to implementing this Seven-Year Action Plan, ensuring that local proposals account for the plans of neighboring towns and community and regional partners.

C.2 Continue to engage boards and residents in discussions about community projects and in volunteering for the stewardship of the town's natural, recreational, and cultural resources.

C.3 Improve public awareness and education level of boards, residents, and students regarding the protection and resilience of natural, recreational, and cultural resources.

C.4 Continue to pursue funding opportunities for open space, recreation, climate resilience, and education.

SECTION 9

SEVEN-YEAR ACTION PLAN

A. SEVEN YEAR ACTION PLAN

The Seven-Year Action Plan fulfills the Open Space and Recreation Plan objectives. The goals and objectives are listed in the first two columns of Table 9-1 in the same order as they appear in Section 8 and are followed in the subsequent columns by recommended actions, responsible board or group, start date, and potential funding sources. By implementing the recommended actions, each objective will begin to be realized. Successful implementation will require the participation of existing town boards, committees and staff, including but not limited to the Open Space and Recreation Committee, Town Administrator, Select Board, Planning Board, Park Commission, Conservation Commission, Council on Aging, Board, Historical Society, Highway Department, Assessors, Finance Committee, and others.

Two recent planning efforts undertaken by the Town that look at natural hazards and climate change provide important points of leverage and overlap with the OSRP. In 2021, Rowe engaged in the planning process to become designated a Municipal Vulnerability Preparedness (MVP) community. Rowe also updated its five-year Hazard Mitigation Plan (HMP) in 2016. Relevant action items from the MVP Plan and HMP are included in the OSRP Seven-Year Action Plan. Thinking creatively and designing a project to achieve multiple objectives and provide multiple benefits can expand the opportunities for funding: some open space or recreation projects could be funded by the MVP Action Grant program or the FEMA hazard mitigation grant program if open space preservation and/or recreation amenities are included in the project design. Actions derived from the HMP or MVP plan are indicated in *Table 9-1: Action Plan* in the Plan Sharing Action Item column.

For actions that require money, such as permanently protecting open space, funding from state and federal grants, private non-profit conservation agencies, and foundations are available to supplement Town funds. These sources are more likely to invest in land protection projects that have a broad base of community support. Recommended actions are sometimes constrained by a lack of volunteer time rather than funding, so partnering with non-profits, other Towns and other organizations is a helpful way to leverage more grant writing and administration capacity.

B. RECENT ACCOMPLISHMENTS

While creating the Action Plan, the Committee compiled a list of projects that were completed in Rowe since 2010:

2010: Right-to-farm bylaw adopted.

2011: Green Community designation, resulting in funding for installation of a municipal solar PV array at the school, municipal weatherization and sealing measures, municipal heating system conversion to wood pellet and air-source heat pumps, educational workshops, and a residential energy incentive program.

2014: Survey of Pelham Lake completed by Solitude Lake Management that assessed the health of the lake and monitored for invasive species.

2015: Assessment of the health of the white pines at the Percy Brown Picnic Area.

2018: Nan Williams Conservation Area transferred to Franklin Land Trust and opened to the public.

2018/2019: Rowe becomes a member of the Woodlands Partnership of Northwest Massachusetts.

2020: Funding secured to replace a culvert on Ford Hill Road with a bridge, which will improve aquatic and terrestrial stream passage.

2020: Forest assessment and *Pelham Lake Park Forest Stewardship Plan* created, including goals to enhance resilience and promote greater biodiversity within park borders and beyond.

2021: Installation of 13 kiosks at major trailheads. Kiosks were built to display maps, and educational and informational materials with funding from the Woodlands Partnership of Northwest Massachusetts.

2021: Conservation of over 800 acres of land with publicly accessible trails centered around Warner Hill in Rowe and Charlemont by five families and the Shantigar community, together with the Franklin Land Trust, MA Executive Office of Energy and Environmental Affairs, MA Department of Fish and Game, New England Forestry Foundation, and other generous foundations and donors.

2021: *Rowe Municipal Vulnerability Preparedness Plan* completed.

2021: 15 diseased white pine trees removed from the Percy Brown Picnic Area, to be replaced with more resilient species of hardwoods and conifers.

2022: *Deerfield River Study* completed in collaboration with the FRCOG and other Deerfield River stakeholders. The plan identifies challenges and opportunities for managing public use of the Deerfield River.

2022: Design of an Old Growth interpretive trail to educate the public about the characteristics of old growth forests, their importance in sequestering carbon, and the importance of preserving them, funded by the Woodlands Partnership of Northwest Massachusetts.

2022: Implemented climate resilience projects, including an eastern hemlock study plot that annually assesses hemlock wooly adelgid damage, inoculation of ash trees against the emerald ash borer, red oak enrichment plantings, and white oak assisted-migration plantings, funded by the Woodlands Partnership of Northwest Massachusetts.

2022: With regional MVP funding, updated the *Pelham Lake Park Forest Stewardship Plan* to include additional climate-smart practices, climate change mitigation measures, and other goals for the park's sustainability.

2022: With Town funding, assessed the park's trail system, trail maps, and trail maintenance plan.

2022: Secured Woodlands Partnership of Northwest Massachusetts funding for educational and information materials for the kiosks, purchase of trail blazes for the trails system, and construction materials for additional sections of boardwalk to be installed in 2023.

2023: Rebuilt tennis courts at Pelham Lake, with three pickle ball courts added.

Ongoing: Recreational and education programs in the park, such as educational walks and talks covering topics like forestry, birds, wildlife tracking, and mushrooms, summer recreation programs for children 5 – 12, and twice-a-summer senior picnics.

Ongoing: Assessment and maintenance by Department of Public Works staff of municipal dams, bridges, and roads to be more climate resilient.

B. SEVEN-YEAR ACTION PLAN

HOW TO READ THIS TABLE:

- **Goals** are overarching concepts that articulate the vision of the community for itself. Goals are included as headers under which objectives are listed; the plan’s goals and objectives are of equal importance and not listed in any kind of priority order.
- **Objectives** are milestones toward achieving a goal. Objectives are listed in the far-left column of Table 9-1.
- **Actions** are concrete steps to be taken to fulfill objectives within a time frame.
- **Responsible Board/Group** suggests the Town group that would take the lead in shepherding the project and coordinating with other involved groups. Boards are listed in approximate order of importance.
- **Timeframe** is the suggested period within the next seven years that this item should be worked on.
- **Plan Sharing Action Item** denotes whether this is a related/revised action to an action item in the Hazard Mitigation Plan (HMP), the Municipal Vulnerability Preparedness Plan (MVP), the Climate Smart Stewardship Plan for Pelham Lake Park (PLP Stewardship), or the 2001 Source Water Assessment Program Reports (SWAPs). If no plan is listed, the action item was generated from public outreach and/or research for this OSRP.
- **Potential Funding** sources are suggested starting places for funding; more details and URLs for each grant program can be found in *Appendix B*. Many can be applied for through the Community One Stop for Growth grant application portal.¹

An approved Open Space and Recreation Plan qualifies a Town for Division of Conservation Services (DCS) grant programs, which include the Land and Water Conservation Fund (LWCF) Grant, Drinking Water Supply Protection (DWSP) grant, Local Acquisitions for Natural Diversity (LAND) Grant, and Parkland Acquisitions and Renovations for Communities (PARC) grant, among others.

Acronyms:

3C	MassDOT funding to FRCOG for Continuing, Cooperative, and Comprehensive (3C) transportation planning	FRCOG	Franklin Regional Council of Governments
		Habitat	MassWildlife Habitat Management Grant Program
604b	Grants for water quality monitoring and planning funded through Section 604b of the federal Clean Water Act and administered by MassDEP	LAND	Local Acquisitions for Natural Diversity
		LWCF	Land and Water Conservation Fund
ADA	Americans with Disabilities Act	Mass Historic	Massachusetts Historical Commission
BMP	Best Management Practice	MassTrails	DCR funding for trail systems and trail experiences
Community Forest	Community Forest Grant Program	MassWildlife	Division of Fisheries and Wildlife
DCR	Department of Conservation and Recreation	MVP	Municipal Vulnerability Preparedness program
DCS	Department of Conservation Services	OSRP	Open Space and Recreation Plan
DFG	Department of Fish and Game	PARC	Parkland Acquisitions and Renovations for Communities Grant Program
DWSP	Drinking Water Supply Protection Grant Program	Partners	National Fish and Wildlife’s Partners for Fish and Wildlife Program
DLTA	District Local Technical Assistance program	Planning Assistance	EEA Planning Assistance Grants
EEA	Executive Office of Energy and Environmental Affairs	PLP Stewardship	Climate Smart Stewardship Plan for Pelham Lake Park
EQIP	Environmental Quality Incentives Program, administered by the Natural Resource Conservation Service (NRCS)	s.319	Grants for water quality improvement funded through Section 319 of the federal Clean Water Act and administered by MassDEP
FEMA	Federal Emergency Management Agency’s Building Resilient Infrastructure and Communities Grant	WPNW	Woodlands Partnership of Northwest Massachusetts

¹ Massachusetts Community One Stop for Growth online grant portal: <https://www.mass.gov/guides/community-one-stop-for-growth>

GOAL A. Protect Rowe’s ecosystem integrity and ecosystem services				
OBJECTIVE	ACTION	RESPONSIBLE BOARD/GROUP	TIMEFRAME PLAN SHARING ACTION ITEM	POTENTIAL FUNDING SOURCES
A.1 Prioritize the protection of lands that contain and support the function of valuable and sensitive ecological systems, ecosystems services, recreation, and climate resilience.	Establish procedures for expediently exercising the Town’s Right-of-First-Refusal with respect to Chapter 61 parcels, including the assignment of this right to a land trust, non-profit conservation organization, or state conservation organization. Steps to reaching this goal include: 1. Educate Rowe’s Select Board, Conservation Commission, Planning Board, Board of Assessors, and other relevant Boards and Committees on the Right-of-First-Refusal process. 2. Create a working group to identify criteria for land protection and incorporate the procedure into the 2024 Open Space and Recreation Plan. 3. Identify priority areas for protection using newly developed criteria. 4. Using the established criteria, work with Town Boards to create a step-by-step procedure for evaluating the Town’s interest in parcels coming out of Chapter 61 in a timely manner.	Select Board, Open Space and Recreation Committee, Conservation Commission, Planning Board, Park Commission, Franklin Land Trust	Year 1 – 3 PLP Stewardship	Volunteer time, MVP,
	Develop a strategy for expanding Pelham Lake Park through Town acquisition of land from willing landowners, wherein the Town prioritizes which parcels to acquire using similar criteria as would be established for the Chapter 61 Right-of-First-Refusal process (see above action).	Park Commission, Open Space and Recreation Committee	Year 1 – 3 MVP	Volunteer time, Town staff time
	Encourage Brookfield Renewables to permanently protect acreage that recently came out of protection. Priority could go to areas with public trails and areas of high ecological value.	Select Board, Conservation Commission, Open Space and Recreation Committee, Assessors	Year 1 – 3 	Volunteer time, Town staff time, PARC, LAND, LWCF
	Support efforts by the Town, utility companies, and regional land conservation partners to protect unprotected lands of conservation interest identified in Section 5.	Select Board, Open Space and Recreation Committee, Conservation Commission, Franklin Land Trust, Brookfield Renewables, Great River Hydro	Ongoing 	Volunteer time, local land trust time, PARC, LAND, LWCF
A.2 Manage open space and ecosystems for their many benefits, including biodiversity, habitat, stormwater management, climate resilience, and carbon sequestration.	Follow the recommendations of the Climate-Smart Stewardship Plan for PLP for forest enhancement, diversification of forest composition, monitoring of vulnerable native species, native plant regeneration and treatment, monitoring and control invasive species, etc.	Park Commission	Ongoing PLP Stewardship	MVP, WPNM, EQIP, Habitat
	Improve management of Town-owned open space and recreation parcels outside of Pelham Lake Park: • Clarify who is responsible for the management of Town Forest parcels and develop management goals for them.	Conservation Commission, Select Board, Open Space and Recreation Committee, Park Commission	Year 1 – 3 	Volunteer time, MVP, WPNM, Community Forest

GOAL A. Protect Rowe’s ecosystem integrity and ecosystem services				
OBJECTIVE	ACTION	RESPONSIBLE BOARD/GROUP	TIMEFRAME _____ PLAN SHARING ACTION ITEM	POTENTIAL FUNDING SOURCES
	<ul style="list-style-type: none">Where applicable, apply the same principles for forest management of recommended for Pelham Lake Park on other municipally owned land such as the Town forests.Hire a consultant to develop an invasive species management plan for Town-owned properties.			
	Support Trout Unlimited and other partners in advocating for minimum flow levels in the Deerfield River and other practices encourage the success and health of native trout fisheries.	Conservation Commission, Select Board	Ongoing _____	Volunteer time, Partners
	Explore the feasibility of the participation in a carbon offset program with the use of the PLP forest ecosystem as a carbon sink. If feasible gather support for implementation.	Select Board, Park Commission	Year 3 – 5 _____ PLP Stewardship	Volunteer time
A.3 Protect high quality waters and the availability and quality of drinking water resources by managing stormwater and by protecting or preserving wetlands, cold water fisheries, floodplains, the river corridor, and riparian buffers.	Develop a unified approach to road maintenance that reduces the volume and impact of surface water runoff to transportation infrastructure. Incorporate stormwater BMPs for rural dirt roads into public roadway projects following the forthcoming (2024) Dirt Roads Stormwater Toolkit best practices manual created by the FRCOG.	Select Board, Highway Department	Year 1 – 3 _____ MVP	Town staff time, MVP, FEMA
	Adopt a stormwater bylaw and/or incorporate green performance standards into site plan review.	Planning Board	Year 3 – 5 _____	Volunteer time; MVP, s.319, Planning Assistance
	Hire an engineering consultant to conduct a fluvial geomorphic study of the Pelham Brook watershed to better understand issues of erosion and sedimentation in the lake and stream system and potential risks to road and building infrastructure. Include in this study an evaluation of the conditions at the uncapped Town landfill on the edge of Taylor and Pelham Brooks and provide recommendations to mitigate erosion issues that could lead to contamination of the nearby waterways.	Select Board, Conservation Commission	Year 3 – 5 _____	MVP, 604b
	As an alert system to a groundwater issue, develop a program to track the incidence of wells going dry and needing to be re-drilled.	Select Board, Conservation Commission	Year 5 - 7 _____	Volunteer time, MVP, DLTA
	Revisit the recommendations of the 2001 Source Water Assessment Program (SWAP) Report for Rowe Elementary School and MassDEP’s Wellhead Protection Tips for Small Public Water Systems . Consider developing a local wellhead protection plan or an aquifer protection district and bylaws for compliance with 310	Planning Board, Conservation Commission	Year 5 - 7 _____ SWAPs	Volunteer time, DWSP, MVP

GOAL A. Protect Rowe’s ecosystem integrity and ecosystem services				
OBJECTIVE	ACTION	RESPONSIBLE BOARD/GROUP	TIMEFRAME <div>PLAN SHARING</div> <div>ACTION ITEM</div>	POTENTIAL FUNDING SOURCES
	CMR 22.000 to include IWPA’s and Zone I protection areas for public wells in town. Consider hiring an engineer to map the aquifer, for future use as a Zone II protection area.			
A.4 Minimize flood damage by managing stormwater and by protecting or preserving wetlands, cold water fisheries, floodplains, the river corridor, and riparian buffers.	Hire a consultant to complete an assessment of all culverts and drainage systems in Town. The assessment should include an evaluation of the physical state of the culverts and GIS data of where culverts are located. Prioritize repairs and replacements based on the results of the inventory. The FRCOG has resources to help Towns calculate climate-resilient replacement sizes for culverts that can handle future storm events.	Select Board, Highway Department	Year 1 – 3 <div>_____</div> MVP, HMP	DLTA, 3C
	Hire a consultant to identify necessary flood-proofing measures for Rowe’s municipal buildings located around waterbodies that are vulnerable to flooding.	Select Board	Year 1 – 3 <div>_____</div> MVP	MVP
	Hire a registered professional engineer to: <ul style="list-style-type: none"> Complete a detailed hydraulic and hydrologic (H&H) study that identifies an appropriate method to improve the Pelham Lake dam’s hydraulic capacity. Investigate and identify measures to improve the hydraulic capacity of the Mill Pond Dam to safely pass the spillway design flood with one foot of freeboard, as suggested in the most recent dam inspection. 	Select Board, Park Commission	Year 3 – 5 <div>_____</div> MVP	Volunteer time, MVP
	Consider improving flood resilience in town by: <ol style="list-style-type: none"> Applying to become a member of the National Flood Insurance Program (NFIP); Adopting a floodplain district and zoning bylaw that meets NFIP criteria or a river corridor zoning bylaw, whichever strategy will best protect the health of the river and nearby public and private infrastructure based on the analysis provided by the H&H study; and Revising the Zoning Bylaws to include flood prevention and mitigation in the Special Permit Guidelines, and Site Plan Review, and subdivision regulations. 	Select Board, Planning Board	Year 3 – 5 <div>_____</div> HMP	Town staff time, volunteer time, DLTA, MVP, Planning Assistance
A.5 Use land use regulations to increase protection of valued open space and habitat, and to support climate change mitigation and adaptation strategies.	Consider revising zoning bylaws to allow new development to be more clustered together help prevent the fragmentation of undeveloped open space by new development (e.g. reduce minimum lot size, cluster zoning bylaw, or senior/congregate housing bylaw).	Planning Board	Year 1 – 3 <div>_____</div>	Volunteer time, DLTA, Planning Assistance
	Update solar bylaws and the permit review process to increase environmental safeguards, including more protection for wildlife habitat, provisions for pollinators, increased stormwater management, restoration of agricultural land, etc., and to address battery storage.	Planning Board	Year 1 – 3 <div>_____</div>	Volunteer time, DLTA

GOAL B. Enhance recreational and cultural opportunities in Rowe				
OBJECTIVE	ACTION	RESPONSIBLE BOARD/GROUP	TIMEFRAME PLAN SHARING ACTION ITEM	POTENTIAL FUNDING SOURCES
B.1 Steward Pelham Lake Park to keep it functioning as a beloved community resource.	Build and maintain a trail network that is less vulnerable to extreme and irregular precipitation events using strategies such as re-routing trails to better fit with topography and responsible trail layout principles, improving drainage where trails overlap with water features, building trail infrastructure such as bridges or boardwalks to reduce areas of erosion, and increasing trail monitoring during and after extreme weather.	Park Commission	Year 1 – 3 PLP Stewardship	MassTrails, WPNM
	Identify whether there is a need for more Carry In – Carry Out signage.	Park Commission	Year 1 – 3 	WPNM
	Consider installing a 1,500-foot lollipop boardwalk into beaver meadow complex and install bird blinds and a viewing tower.	Park Commission	Year 5 – 7 PLP Stewardship	WPNM, PARC
B.2 Expand the recreation options across town.	Reach out to owners of privately owned, publicly accessible land, such as properties owned by New England Forestry Foundation or the hydroelectric utility companies, to better understand goals of property to clarify preferred use and see if there is potential to expand use. Where trails exist, seek to understand who should be responsible for trail maintenance and improving signage.	Open Space and Recreation Committee, Select Board	Year 1 – 3 	Volunteer time, Town staff time
	Support creation or expansion of long-distance trails, such the potential Regional Through Trail currently being mapped that would connect Catamount State Forest and Mohawk Trail State Forest through Rowe.	Park Commission, Select Board, Open Space and Recreation Committee	Ongoing 	Volunteer time, Town staff time
	Put together a committee to explore options for improving indoor community spaces.	Park Commission, School Committee, Library Trustees, Select Board, Council on Aging	Year 1 – 3 	Volunteer time, Town staff time
B.3 Protect and improve the accessibility of recreational and cultural opportunities in Rowe for all ages and abilities.	Using the Rowe ADA Self-Assessment as a guide, install ADA accessible parking and pathways to recreation facilities where feasible and where doing so does not dramatically alter the desired character of the site. As picnic tables are replaced, make sure they are accessible.	Park Commission, Open Space and Recreation Committee, Select Board	Year 1 – 3 	ADA, WPNM
	Continue to improve trails for low-mobility users, with the goal of ultimately establishing at least one ADA accessible trail. Consider the Beach Trail, Babbling Brook Trail, or the lollipop boardwalk in the beaver meadow.	Park Commission, Select Board	Year 3 – 5 	ADA, WPNM

GOAL B. Enhance recreational and cultural opportunities in Rowe				
OBJECTIVE	ACTION	RESPONSIBLE BOARD/GROUP	TIMEFRAME _____ PLAN SHARING ACTION ITEM	POTENTIAL FUNDING SOURCES
	Provide community boats at Pelham Lake Park that cater to a range of abilities, such as having a paddle boat for people who have difficulty using their arms for propulsion.	Park Commission	Year 3 – 5 _____	ADA, WPNM
	Create an accessible fishing dock.	Park Commission, Select Board	Year 5 – 7 _____	ADA, DFG Office of Fishing and Boating Access funds, WPNM
	Continue to host programs that are popular with children and older or less mobile residents, including sitting programs and slow walks.	Park Commission, Rowe Historical Society, Open Space and Recreation Committee	Ongoing _____	Town staff time, Cultural Council
B.4 Protect cultural and historic resources.	Fill out or update Massachusetts Historical Commission inventory forms for buildings and areas of historical importance in Rowe.	Rowe Historical Society	Year 5 – 7 _____	Volunteer time, Mass Historic
	Encourage work with local Indigenous groups (e.g., the Nipmuc or Stockbridge-Munsee Community) on a cultural resource inventory or other related projects.	Open Space and Recreation Committee, Park Commission, Select Board	Ongoing _____	Volunteer time

GOAL C. Create the organizational and educational framework for achieving the goals of the open space and recreation plan				
OBJECTIVE	ACTION	RESPONSIBLE BOARD/GROUP	TIMEFRAME PLAN SHARING ACTION ITEM	POTENTIAL FUNDING SOURCES
C.1 Develop a coordinated approach to implementing this Seven-Year Action Plan, ensuring that local proposals account for the plans of neighboring towns and community and regional partners.	Hire a staff person or establish a committee comprised of members of various boards to streamline and carry out the OSRP’s Seven-Year Action Plan, the MVP and HMP plans, and the Climate-Smart Stewardship Plan for Pelham Lake Park. This role would be focused on grant writing, managing the implementation of plans and project, and keeping Town committees on track with achieving the objectives, and other actions listed here under objective C.1.	Open Space and Recreation Committee, Select Board, Parks Commission, Pelham Lake Park staff, Planning Board, Conservation Commission, Assessors, and other Town boards and committees	Year 1 – 3	Volunteer time, Town staff time
	Align planning efforts with regional plans such as the Regional Plan for Sustainable Development , Deerfield River Corridor Outdoor Recreation Study , and the Watershed-Based Plan for the Deerfield River .	Open Space and Recreation Committee	Year 1 – 3	Volunteer time
	Work with neighboring towns on regional conservation and recreation stewardship and special projects. Heath has an OSRP with which to coordinate efforts.	Open Space and Recreation Committee	Year 1 – 3	Volunteer time
C.2 Continue to engage boards and residents in discussions about community projects and in volunteering for the stewardship of the town’s natural, recreational, and cultural resources.	Advocate that the Town be involved in the writing of a recreation plan for the publicly accessible Bear Swamp parcels.	Select Board, Park Commission	Year 1 – 3	Volunteer time, Town staff time, WPNM
C.3 Improve public awareness and education level of boards, residents, and students regarding the protection and resilience of natural, recreational, and cultural resources.	Create educational materials for display and/or distribution at Pelham Lake Park on the climate smart stewardship forestry practices occurring and planned at the Park.	Park Commission, Open Space and Recreation Committee	Year 1 – 3 PLP Stewardship	Volunteer time, Town staff time, WPNM
	Share the final Rowe OSRP with the regional school district(s) so that students may have the opportunity to use the information in the Rowe OSRP in science and environmental curriculum.	Open Space and Recreation Committee	Year 1 – 3	Volunteer time
	Use community-friendly communication avenues, such as the Goal Post and public talks, to conduct educational outreach to private landowners about major conservation topics related to water, biodiversity, climate	Open Space and Recreation Committee, Conservation Commission, Park Commission	Ongoing	Volunteer time, WPNM, conservation organizations

GOAL C. Create the organizational and educational framework for achieving the goals of the open space and recreation plan				
OBJECTIVE	ACTION	RESPONSIBLE BOARD/GROUP	TIMEFRAME _____ PLAN SHARING ACTION ITEM	POTENTIAL FUNDING SOURCES
	resilience, land protection, sustainable land management, funding sources, etc. The OSRP can be adapted in sections for educational purposes. Create a schedule for publishing to the Goal Post.			and other local expert knowledge
	Use community communication avenues, such as the Goal Post, to promote recreation areas, trails, and programs and events to the general public. Use maps and describe parking, features, level of difficulty, and rules of uses when applicable.	Open Space and Recreation Committee	Ongoing _____	Volunteer time
C.4 Continue to pursue funding opportunities for open space, recreation, climate resilience, and education.	Continue to participate in and support the Woodlands Partnership of Northwestern Massachusetts for continued access to the financial and technical resources provided by the partnership.	Select Board, Park Commission	Ongoing _____	Volunteer time, Town staff time, WPNM
	Adopt the Community Preservation Act, which would allow the Town to raise funds through property taxes and matching state funds to use in local open space, historic preservation, community housing, and outdoor recreation projects.	Select Board, Finance Committee	Year 3 – 7 _____	Volunteer time, Town staff time, FRCOG time